Nuclear Liability and Insurance for Nuclear Damage in Switzerland

Sebastiaan M.S. Reitsma, Dr. jur.
Manager, Swiss Nuclear Insurance Pool

Abstract

With nuclear power generating 43% of its total electricity production, Switzerland is amongst the states, employing the highest percentage of nuclear electricity. Although, the country has not ratified any of the international Nuclear Liability Conventions, its Nuclear Third Party Liability Act reflects all the principles, underlying those Conventions. The statutory liability of the operator of a Swiss nuclear installation itself being unlimited, the total insurance limit of CHF 770 m. provides the highest private insurance protection worldwide. With the support of its foreign Reinsurance Pools, the capacity for this insurance guarantee has, over more than 40 years, been built up by the Swiss Nuclear Insurance Pool. Apart from Third Party Liability cover, the Pool also provides Property insurance to Swiss nuclear installation operators and reinsurance cover to other nuclear insurers worldwide.

Introduction

Traditionally, hydroelectric power plays an important role in Switzerland with its massive alps and plentiful rain, flowing down to the rivers of the Rhine, Rhone, Po and Danube. Currently, more than 55% of Swiss electricity is generated by hydroelectric power. Unlike most other European countries, conventional thermal power stations have little impact on Switzerland’s total electricity generating capacity, contributing less than 2%. The largest of them generates 808 MWth and was completed in 1965. At this time, urged on by the Federal Council, the Swiss electricity companies were in the throes of planning their country’s first nuclear power station. Today 43% of the country’s electricity production is provided by nuclear power.

Like everywhere else, Switzerland enthusiastically embraced the peaceful use of nuclear energy by launching an ambitious construction programme which, over the last three decades, built five nuclear power plants.
<table>
<thead>
<tr>
<th>Power station</th>
<th>Type/Make of reactor</th>
<th>Net output (MWth)</th>
<th>Commercial operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beznau (KKB)</td>
<td>PWR/WE</td>
<td>1031</td>
<td>Unit 1: December 1969</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1009</td>
<td>Unit 2: March 1972</td>
</tr>
<tr>
<td>Mühleberg (KKM)</td>
<td>BWR/GE</td>
<td>1003</td>
<td>November 1972</td>
</tr>
<tr>
<td>Gösgen (KKG)</td>
<td>PWR/KWU</td>
<td>2740</td>
<td>November 1979</td>
</tr>
<tr>
<td>Leibstadt (KKL)</td>
<td>BWR/GE</td>
<td>2910</td>
<td>December 1984</td>
</tr>
<tr>
<td><strong>TOTAL POWER</strong></td>
<td></td>
<td><strong>8693</strong></td>
<td></td>
</tr>
</tbody>
</table>

Tragically, the absence of an effective containment concept contributed greatly to the Tschernobyl disaster of 1986. This kind of disaster, due to their construction and inherent safety characteristics, could not possibly happen at Swiss power stations. Nevertheless, as in other countries with similar stations, it enhanced the Swiss' feelings of doubt vis-à-vis nuclear energy. These feelings had replaced the initial enthusiasm about its introduction and were mainly caused by fear of a nuclear explosion. In a 1990 referendum a moratorium on the building of any further nuclear power plants for at least 10 years was approved. At the same time, however, a proposal for phasing out nuclear power completely was rejected.

At present no internal electricity shortages for the next 15 to 20 years are expected in Switzerland. Since 1985, the country has steadily negotiated long-term purchasing agreements and equity holdings with French electricity producers. In fact, these guaranteed sources, totalling around 7000 MWth, amount to more than 80% of Switzerland’s nuclear power stations put together! So, for the time being the Swiss are net exporters of electricity, mostly to Italy during the summer months.

However, sooner or later - certainly before the first nuclear power plant is scheduled to be decommissioned - Switzerland will have to decide on its long-term electricity generating future. Thereby it will have to take into account that available sites for additional hydroelectric power plants are few and that traditional energy sources like coal, oil and gas - if still available in the future - are not very popular in environmentally conscious Switzerland. Furthermore, “clean” energy sources, such as wind, solar and biogas, will not provide the real solution. Despite many ingenuous pioneer projects, it is highly unlikely that these alternative energy sources will contribute more than the government’s target of 0.5% of total electricity production by the year 2000. Today, for instance, solar energy accounts for only 0.008% of the electricity consumed. For the time being, upgrades will increase the total hydraulic power generating capacity by 5% around 2000. Similarly, a 10% target has been set for nuclear power in addition to the extra 418 MWth capacity already achieved by upgrading existing power stations.
The Nuclear Liability System in Switzerland

1 Swiss Nuclear Liability Act

Switzerland has not ratified any of the international Nuclear Liability Conventions. However, its Nuclear Liability Act features all basic principles of the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the 1963 Vienna Convention on Civil Liability for Nuclear Damage. The Act, the “Kernenergiehaftpflichtgesetz” (KHG), dates back to 18 March 1983. Before, a detailed regulation of nuclear liability was integrated in the Nuclear Energy Act of 1959. Since its entry into force on 1 January 1984, the KHG has been modified in a number of Ordinances, most of them increasing the mandatory minimum insurance sums. The relatively frequent increases of the statutory insurance limits in Switzerland relate to an article in the KHG, obliging the Federal Council to increase those limits, where it is possible to obtain insurance cover on the insurance market at reasonable conditions for higher amounts. Although the principle also exists in other countries, it is exceptional to find it explicitly included in a national Nuclear Liability Act.

2 Nuclear Liability; scope and amounts

The operator of a Swiss nuclear installation is exclusively and unlimitedly liable for damage caused by nuclear substances sited at the installation. The KHG only allows a right of recourse against persons having intentionally brought about the damage, having unlawful possession of the nuclear substances from which the damage emanated or having contracted to hold the liable party harmless.

The operator has to take out an insurance policy for his insurable nuclear risks with an insurer licensed to transact business in Switzerland. Any such policy has to amount to at least CHF 700 m. plus CHF 70 m. for proceedings costs and interests. Supplementary to these amounts he has to take out insurance with the Federal Government up to a total (inclusive of the insurance cover) of CHF 1'000 m. plus CHF 100 m. for costs and interests. As far as uninsurable risks are concerned (natural catastrophes of an exceptional character, war, claims where the action has not been brought within 10 years of the damage-inflicting incident) the Federal Government provides cover from ground up, up to the total of CHF 1'100 m. The premium for all federal guarantees amounts to 108% of the private insurance cover premium and is credited in a Nuclear Damage Fund. On top of the CHF 1'100 m. the installation operator is liable without any cover. In case all available means appear not to be sufficient, Parliament decides upon further compensation. If necessary the Federal Government can provide supplementary compensation of unpaid claims.

According to the KHG the operator of a Swiss nuclear installation is also liable for damage, resulting from nuclear material, transported from his installation until it has been brought onto the site of the installation of destination, in or outside Switzerland. In case of nuclear materials from abroad being transported to an installation in Switzerland, the operator of that installation is liable for damage resulting from those materials on Swiss territory. In case of damage resulting from transports in transit through Switzerland, the holder of the transport permit is liable. Foreign transporters have to declare in written, that
they agree to the application of Swiss jurisdiction. Furthermore, they have to choose a domicile in Switzerland. The holder of a transport permit can be obliged to pay for the costs of the competent authorities having been made in order to prevent or to limit a nuclear loss. The liability in respect of nuclear material in transit through Switzerland is limited to CHF 50 m. and CHF 5 m. for costs and interests. To the other transports mentioned above, the general liability limit in the KHG applies.

3 Nuclear Damage, definition and scope in the KHG

According to the KHG nuclear damage is deemed to be:

a. damage, harm or loss caused by the radioactive, poisonous, explosive or other hazardous characteristics of nuclear substances;

b. damage caused by another radiation source in a nuclear installation;

c. damage, harm or loss which occurs as the consequence of officially decreed or otherwise recommended measures intended for protection of an immediately threatening nuclear hazard.

Compared to nuclear liability acts in many other countries the liability for the type of damage as defined under c. enhances the liability of Swiss installation operators. In case an incident at a nuclear power station results in an immediately threatening nuclear hazard, authorities will take preventive measures like closing utilities, evacuation of the endangered population with the resulting loss of work potential etc. For the kind of loss, resulting from these measures (with the exception of loss of profits), the installation operator is also liable, when the incident appears to be controllable and is not followed by an escape of radiation. The KHG also allows costs of measures undertaken by the responsible authorities themselves for protection from or diminution of a directly threatening nuclear hazard to be imposed upon the installation operator. It is not clear whether the authorities will indeed claim these costs in practice.

4 Nuclear substances with small quantities of radioactivity

These substances, often simply referred to as “small quantities”, are described as nuclear materials with low levels of risk. It concerns substances such as empty and cleaned containers for nuclear materials, slightly contaminated tools, radioisotopes or medical, industrial and agricultural use and the like. They are not included in the scope of application of both the Nuclear Liability Conventions and the KHG. In an Ordinance to the KHG the nuclear materials, to which the Act does not apply, are listed. It basically concerns nuclear substances, which cannot cause a selfperpetuating chain reaction.

5 Compensation of nuclear damage

According to the KHG the injured party has a right of direct action against both the insurer and the Federal Government, of course, to the extent of any subsisting insurance cover. However, the right to lodge a claim expires three years after the date on which the injured party first became aware of the damage as well as of the identity of the liable person. Such claims also expire, where the action is not brought within 30 years of the date of the damage-causing incident. After this period the Federal Government includes cover for
long-latent claims in the amount of its guarantee as mentioned under paragraph 3.

In respect of compensation of nuclear damage suffered by persons resident abroad, for which the operator of a nuclear installation in Switzerland or the holder of a transport permit issued in Switzerland is responsible, the KHG determines that compensation will be owed as well. However, provided that the foreign state concerned has made legal provision which is at least the equivalent of its Swiss counterpart. The maximum limit of liability will not amount to less than CHF 50 m. in cases where the foreign state has set a lower maximum limit.

We have seen under paragraph 3 above that the KHG features the basic principles of the international Liability Conventions. One of them is that all liability for nuclear incidents at a nuclear installation is channelled back to its operator. His liability is absolute, which means that no exonerations are permitted to him. However, he is also obliged to take out insurance. The legislator, being aware that insurers cannot possibly cover all risks, has listed those, which insurers may exclude from cover, in an Ordinance to the KHG. It concerns the following *exclusions*:

- extraordinary natural - or warlike events;
- claims, for which no action is brought within ten years of the damage-causing event;
- claims, for which no action is brought within 20 years of the loss, theft, jettison or relinquishment of possessions of nuclear substances.

Those risks are included in the government guarantee.

Although the operator’s liability under the KHG is absolute, the Act grants him a *right of recourse* against persons, who have either brought about the damage intentionally or stolen or concealed the nuclear substances from which the damage emanated. The operator’s private insurer and the Federal Government enjoy the same right of recourse, albeit to the extent that the injured parties are not disadvantaged thereby. Private insurer and Federal Government also have a right of recourse against the operator, in so far as they would be entitled to reduce or refuse insurance benefits under the insurance contract or under the Federal Law on Insurance Contracts. Again, they may only assert this right of recourse to the extent that the injured party is not disadvantaged thereby.

The KHG does not provide for *automatic reinstatement* of the sum insured after claims have been paid or reserves for a damage-causing incident have been constituted. In the event that the value of any benefits or reserves reach one tenth of the sum insured, the insurer must inform both the policy holder and the competent Federal Authority. In such cases, the policy holder must obtain additional insurance up to the level of the full original sum insured. Such insurance shall of course only cover damage occurring after it enters into effect.

The Federal Government’s involvement in the Third Party Liability cover for Swiss nuclear power stations requires claims settlement skills -and capacity to deal with the damage resulting from a possible nuclear incident, as far as the Federal Government’s share therein is concerned. These are not available in Berne. Therefore, Government has entered into a *claims settlement contract* with the SPN. By virtue of this contract, insurers
will settle the claims pertaining to the Federal Government’s guarantees. In exchange, Government will cover the Pool’s expenses following a staggered cost compensation system. The contract does not provide for a specific mode of distributing funds, for example between personal injuries and property losses, nor does the KHG.

If a case is brought to court, the court of the canton in which the nuclear installation causing the damage is situated has *jurisdiction*. Should damage be inflicted during the carriage of nuclear substances, the competent court is that of the canton in which the damage-causing incident occurred. Where it is impossible to determine the location of the incident, the competent court is either that of the canton in which the nuclear installation is situated or - in the case of transport of nuclear materials - that of the canton in which the holder of the transport permit is resident or has a nominate domicile. A decision rendered by the cantonal court may be contested in the Federal Tribunal.

**B The Insurance of Nuclear Risks in Switzerland**

1 **The Swiss Nuclear Insurance Pool (SPN)**

As in most other countries operating nuclear installations, the insurance of such installations in Switzerland is provided by a Nuclear Insurance Pool, the “Schweizer Pool für die Versicherung von Nuklearrisiken” (SPN). The SPN was founded in 1957, after insurance companies being active in writing direct or reinsurance business in Switzerland decided to form a “simple company” as defined in the Code of Obligations in order to jointly underwrite nuclear risks both in Switzerland and abroad.

2 **The Pool’s Organisation**

The most important body of the SPN is the *Pool Assembly*, which comprises 34 Members, in terms of premium representing almost the total non-life insurance market in Switzerland.

The Pool Assembly elects the SPN’s *Steering Committee*, which comprises seven to twelve Members and is responsible for establishing general guidelines for the conduct of Pool-business. The Steering Committee reports to the Pool Assembly.

The Pool Assembly also elects the three to six Members of the three *Technical Committees*, responsible for dealing with technical insurance matters. There are Technical Committees for Domestic Third Party Liability and Workers Compensation insurance, Domestic Property insurance and Foreign insurance. They report to the Steering Committee.

Furthermore, the Pool Assembly elects two *Auditors*, representing Member-companies, not being active in other Pool-organs. The Auditors are responsible for approving the Annual Report and have the right to inspect the Pool’s books and to ask for all pertinent information at any time.

Also, the *Administrative Office* is selected from the ranks of the Pool-members. Although the Office, like all other organs of the SPN, is elected by the Pool Assembly for a three year period, “Swiss Reinsurance Company” has always been re-elected so far. The Office conducts the day-to-day business of the Pool. Moreover, it is responsible for executing the
tasks assigned to it by the Steering Committee and the authority delegated to it by that Committee and the Technical Committees.

As regards Swiss risks a limited number of Member-companies of the SPN underwrite the policies on behalf of the other Members. Those “fronting” companies cede the risk into the pool. They are responsible for the relationship with the insureds. The policy conditions, however, are drafted within the Pool-organisation.

3 Insurance cover and capacity

Once a risk has been ceded into the Pool, it is divided amongst its Members pro rata to their share in the specific type of insurance, underwritten by the SPN. Members are free to choose whether and, if so, the amount they are prepared to make available to the Pool for the domestic branches Third Party Liability, Workmen’s Compensation and Property insurance as well as for all foreign underwriting branches combined. As regards foreign underwriting they can abstain from participating in the insurance of nuclear risks in individual countries. The capacity for domestic underwriting presently amounts to CHF 343.4 m. for Property, CHF 323.4 m. for Third Party Liability and CHF 8.3 m. for Workmen’s Compensation insurance. For foreign underwriting the capacity varies, depending on the country where it is used, from CHF 88 m. to CHF 280 m. The SPN makes its capacity available for the insurance of nuclear installations, in principle per risk and per year. Should a Member or a foreign reinsurer fail to pay his share in a loss, the (other) Members of the SPN will jointly cover the lost share.

4 Nuclear Third Party Liability Insurance

The SPN’s Third Party Liability insurance policies mirror the Swiss legislative position as set out under Section A. Therefore this paragraph only covers those provisions where insurance-related additional information is relevant.

Apart from the mandatory insurance limit in the KHG, totalling 770 m. (see Section A, par.2), the Pool also provides cover for non-nuclear Third Party Liability, typically up to CHF 10 m.

Furthermore, most Swiss power station operators take out additional insurance for preventive measures undertaken by the Authorities (see Section A, par. 3) up to an amount of CHF 5 m. The losses, resulting from preventive measures, ordered by the competent Authorities (see Section A, par. 3) are included in the liability insurance cover, provided to installation operators, albeit above a CHF 20 m. deductible in most cases. Workers Compensation insurance is still provided by the SPN. However, since radioactive contamination is not excluded from Swiss social insurance covers anymore, this line of business nowadays hardly plays a role in the Pool’s activities.

Like other insurance markets, also the Swiss insurance industry generally excludes radioactive contamination from its insurance policies, leaving it to its Nuclear Insurance Pool to provide cover for this particular risk. However, the relevant exclusion clauses do not include the nuclear substances with small quantities of radioactivity, which are mentioned in par. 4 of Section A. Therefore, those substances are usually covered by the
Swiss insurance market and not by the SPN.

The SPN not only covers the nuclear power plants on Swiss territory. Also, **other installations** are included in its direct Third Party Liability portfolio. As the definition of "nuclear installations" in the KHG includes research reactors, also those are covered by the Pool. The same goes for installations for the storage of nuclear substances. Switzerland does not accommodate facilities for manufacturing, processing or reprocessing nuclear materials being the other facilities to which the definition of "nuclear installations" refers. Therefore, the portfolio of the SPN's direct Third Party Liability insurance does not include such facilities.

The majority of the Swiss installation operators have included their liability for all nuclear damage, resulting from nuclear substances in transit, in their installation policies. In some cases **Transport Liability** is excluded under those policies and covered separately.

5 Other insurances, provided by the SPN

So far, subjects in relation to Third Party Liability have been covered. Clearly, this relates to this part of the Seminar on “Nuclear Liability and Insurance for Nuclear Damage”. However, this Section on the insurance of nuclear risks in Switzerland would not be complete without a short reference to other covers, available from the SPN.

Traditionally, the operators of the Swiss nuclear power stations also insure their property at the SPN. **Property** insurance is provided in coinsurance with the operators’ captive-insurer, who, depending on the station, covers 20 to 40% of the risk. The highest sum insured amounts to over CHF 2'500 m. Contrary to Third Party Liability insurance, where the KHG does not allow deductibles, in the SPN’s property insurances deductibles, varying from CHF 1 to 2 m., are common.

Although the SPN is prepared to grant **Machinery Breakdown** cover, possibly as part of the property insurance, this kind of cover is and has always been provided to operators of Swiss nuclear power plants by the insurance market. Also, **Business Interruption** insurance has been offered by the SPN. However, it has never attracted the interest of the nuclear power plant operators in Switzerland.

The insurance protection provided by the SPN, is accomplished in close consultation with the operators of Swiss nuclear installations, with whom the Pool maintains an excellent relationship. Problems in respect of cover or capacity are openly discussed. This way potential conflicts are solved by mutual consent, taking into account the interests of both parties. Surely, this is a sound basis for the continuation of a long standing business relationship.