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**NUCLEAR LIABILITY AND INSURANCE
FOR NUCLEAR DAMAGE IN SWEDEN**

by

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Abstract:

This paper contains some facts about the Swedish nuclear energy production system and about the nuclear operators liability with the important issues.

The nuclear insurance of Sweden is also explained in short terms

I. Nuclear Energy Production System

Sweden started discussions about nuclear power production already in the 1950:s. In 1965 the first nuclear plant for commercial use was ordered to be built in Oskarshamn on the east coast of Sweden and it was connected to the grid in 1972. Before that two research reactors had been built and one, some 80 km:s south of Stockholm, is still in use.

At present there are 12 reactors in operation. Of these 9 has been constructed by ABB (former ASEA) and 3 by Westinghouse. There are two main operators of nuclear power plants in Sweden, Vattenfall AB, state owned, and Sydkraft AB, privately owned. They respectively own 7 and 5 reactors. All 12 reactors were built between 1969 and 1985

The below chart will show the Swedish Reactors

Name	Built by/year	Thermal effect MW	Net generated power MW
Barsebäck 1	ABB/1975	1800	615/600
Barsebäck 2	ABB/1977	1800	615/600
Forsmark 1	ABB/1980	2928	1006/968
Forsmark 2	ABB/1981	2928	1006/969
Forsmark 3	ABB/1985	3300	1200/1158
Oskarshamn 1	ABB/1972	1375	465/445
Oskarshamn 2	ABB/1975	1800	630/605
Oskarshamn 3	ABB/1985	3300	1198/1160
Ringhals 1	ABB/1976	2500	860/830
Ringhals 2	Westinghouse/1975	2660	917/875
Ringhals 3	Westinghouse/1981	2783	960/915
Ringhals 4	Westinghouse/1983	2783	960/915

The Nuclear Power Industry of Sweden generate about 47% of all electricity produced in the country. Hydro-power is the other important source for power production with slightly less than 50% of the production.

As may already be known the Swedish Government is planing for a phase-out of the Nuclear Power Industry. They have passed a new law that makes it possible for the Government to withdraw the licence for any reactor in Sweden. There is now a decision to close the

nuclear plant Barsebäck 1 as per the first of July 1998. This has of course disturbed the owners of the nuclear plant. The owners has filed a number of law suits against the Government in order to find out if their acting is in conformity with Swedish and European Law and of course for the possibility to inhibit the closure of the plant. It will be interesting to see the outcome of this struggle. One conclusion, at least, can be drawn at this stage and that is that there will be no more nuclear plants built in Sweden for the foreseeable future.

II. Nuclear Liability System

In order to facilitate the planing and pave the way for nuclear power plants, among other things, the first nuclear liability act of Sweden was passed in 1960 and the Swedish Atomic Insurance Pool was founded in 1956. Since then Sweden has signed and ratified the Paris-Convention of 1960 and the Supplementary Convention of 1963 and the existing Nuclear Liability Act of Sweden is from 1968. The act has been slightly altered during the years. The most significant changes are concerning the liability amount which has increased considerably since 1968. As indicated above the Swedish Nuclear Liability Act went into force on the first of January 1968. It is built on the principles of the Paris Convention and the Supplementary Convention and the four corner-stones of the Nuclear Liability Act are:

- *The operators shall be strictly liable for all damages outside the site, i.e. to all third-parties.
- *The liability shall be channeled to the operator alone.
- *The liability shall be limited both in amount and time.
- *The operator shall cover his liability by insurance or by financial guarantee.

The liability amount is at present SDR 175 million and the time bar for claims is ten years. The Swedish Government are investigating the possibilities of increasing the liability amount for 1999. The amount that is suggested is SDR 300 million and the Government wish to impose an unlimited liability on the operator.

To the operators insured amount of SDR 175 million/accident there will be added another 125 million due to the provisions of the Supplementary Convention. Further there is a provision in the Swedish Nuclear Liability Act that makes it possible for the Government to increase the amount even further in a situation of a nuclear accident.

Concerning non-irradiated fuels or other non-irradiated substances the liability of the operator is limited SDR 10 million and that amount is also applicable for transport of same substances.

A nuclear damage is defined according to the Nuclear Liability Act as: "damage caused by nuclear fuels or substances or irradiation from other nuclear sources".

A nuclear accident is defined as: "such event or succession of events with the same origin that causes nuclear damage".

Excluded from the Swedish legislation are so called "small quantities" of radioactive substances and the operator is not liable for war, riots and natural disasters.

All reactors falls under the provisions of the Swedish Nuclear Liability Act. This means that the first reactor built in Sweden, Ågesta, also has to be insured although it is closed since many years. All reactors are not insured as one research-reactor is enjoying a governmental guarantee, but that guarantee will probably be withdrawn by the Government by the end of June 1998.

Any dispute for compensation for nuclear damages can be brought before a court in Sweden, and any court-decision from a country being party to the Paris Convention and the Lugano Convention will most likely be recognized here.

Compensation for a nuclear damage will be paid both for personal and property losses. The time bar for claims are ten years, above that the Government guarantees another 20 years. That means that a claimant in reality is allowed 30 years before he loses his rights to get compensation. As the operator is strictly and alone liable for claims the question of recourse actions falls unless entities or persons have acted with gross negligence or delibratly

III. Insurance of Nuclear Risks

The Swedish Atomic Insurance Pool was founded 1956 and that makes the Pool one of the first within the Pooling System.

Member companies are nine mayor non-life insurance companies in Sweden. The Pool is governed by a board with persons coming from the biggest members. The board meets at least four times a year, and it is of course the board that gives the pooloffice its authorization.

The administration of the Pool is taken care of by the pooloffice which is handling the underwriting, riskassesment and accounting. To the help of the Pool there are four committees:

- *The technical committee
- *The Liability committee
- *The Finance Committee
- *The Transport Committee.

The committees are employed with people coming from the member companies. The members of the technical committee are surveying the nuclear plants on a regular basis. They are paid by the Pool for that service. The other members of the committees are not taking part in the work other when needed, which is on an irregular basis. That situation would of course change dramatically, anyway for the liability committee, in case of a nuclear accident

The capacity provided by the members of the Pool is SEK 1,6 billion for domestic risks and for foreign reinsurance risks the capacity is 80% of the full capacity.

The insured amount for third-party risk is SDR 210 million, which is a 20 % increase of SDR 175 million stipulated by the Nuclear Liability Act, due to the limited capacity in the market. The amounts for material-damage and business-interruption insurances are pending between SEK 9-13 billion depending on the individual reactor.

The Pool offers cover for material damage, business interruption, third-party liability and transport risks. Upon request the Pool can offer EAR- and CAR-Coverage.

The Third-party Liability coverage offered by the Pool does not include Work-mans Compensation or any onsite-property. Costs for investigations are limited to 10 % of the insured amount. Intentional emissions are limited to SEK 15 million over the lifetime for each individual nuclear plant.

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