



INFORMATION FROM BARSEBÄCK

FACTS AND COMMENTS FROM BARSEBÄCK KRAFT AB • AUGUST 2000

When Barsebäck 1 was closed by political fiat on November 30, 1999, a close co-operation with Ringhals was the best alternative to Barsebäck 2. The agreement between the state, Vattenfall and Sydkraft went into effect on August 1. Consequently, Ringhals-Barsebäck is now a corporate group running five nuclear reactors. August 1, Barsebäck 2 restarted and produced electricity after having been closed down for two and a half months due to the abnormally large amount of available hydropower. During the closedown, we have performed additional controls of the plant as well as preliminary preparations for the annual outage. We are now running the plant until the planned outage, which will start on August 24 and will take roughly one month.

The provisions for closing Barsebäck 2 will not be fulfilled. This is our interpretation of the results of two evaluations of the energy realignment, ordered by the Department of industry. The provisions for closing the plant were that Sweden would be able to decrease consumption of electricity while simultaneously increase the availability of electricity generated by renewable forms of energy. The reports clearly state that what would replace Barsebäck 2 would be in the short run Danish coal-power, in the long run Russian and Norwegian fossil gas-power.

Barsebäck, obviously, is planning for continued production.

Lars-Gunnar Fritz
Head of Information

Merger of Ringhals and Barsebäck finalised

As of August 1, Barsebäck Kraft AB is a fully owned subsidiary of Ringhals AB. Simultaneously, in accordance with the agreement reached between the government, Vattenfall and Sydkraft on November 30th last year, Vattenkraft has signed over 25.8 per cent of its stocks in Ringhals AB to Sydkraft. The government will reimburse Vattenfall for its shares at their market value of some SEK5.7 billion.

In connection with the closedown of Barsebäck 1, an agreement concerning the nuclear reactor was made between the government, Sydkraft, and Vattenfall. This agreement accommodated Vattenfall's demand for compensation at market value as well as Sydkraft's demand for replacement power. Sydkraft retains the responsibility for the future demolition and dismantling of Barsebäck, while Vattenfall similarly retains responsibility for its four Ringhals reactors. Both Ringhals and Barsebäck will function as separate companies within a conglomerate structure. Sydkraft simultaneously, via its fully owned Sydsvenska Kraft AB subsidiary, becomes part owner of the conglomerate. The Ringhals-Barsebäck conglomerate operate 5 reactors with a combined production capacity of in excess of 30 TWh (billion kWh) annually and consequently is one of the largest nuclear power producers in the world. The conglomerate will also, on behalf of Sydsvenska Värmekraft AB, handle the closedown and servicing of the Barsebäck 1 reactor.

The Swedish parliament has voted to close down the Barsebäck 2 reactor before July 1, 2001, provided that the conditions set up by parliament as a prerequisite for closure can be fulfilled. These conditions demand that the Barsebäck production

should be replaced by renewable Swedish power and/or by rationalisations leading to a reduction in power consumption.

According to two recent studies, presented by the Department of Industry, it will be impossible to close Barsebäck 2 by June last next year without increasing the importing of Danish coal power, which would lead to dramatic increases of carbon dioxide emissions. A decision on whether to close down Barsebäck 2 may be voted on by parliament during the last part of this year.

The Ringhals-Barsebäck conglomerate will employ a staff of circa 1,500 and will have an installed effect of 4,150MW. The conglomerate will all told produce roughly 20 per cent of all electricity consumed in Sweden. Mr Anders Hjorth will remain as CEO of Ringhals AB and Per Lindell will remain as CEO of Barsebäck Kraft AB.

Barsebäck 2 temporarily closed down May 12 - August 1 due to over-filled water reserves

Barsebäck 2 was closed down on Friday, May 12, since the availability of electric power was exceptionally good; that the effect was lowered already in May is due to the fact that the hydroelectric water reserves were over-full. Both Sweden and Norway have special long-time reservoirs where the available amount of water can be closely observed. These now show that the availability of hydroelectricity will be unusually great during this year, and consequently Swedish nuclear power plants will decrease their production.

"This however does not affect production during fall, winter or early spring, when Sweden will need all available power from all its nuclear reactors. The reduction is instead planned for the late spring and summer," comments Barsebäck CEO Per Lindell.

Renewed inspection of the Barsebäck core sprinkler

During last years Barsebäck and Oskarshamn revisions, indications of flaws were found in the consoles and supports of the hardcore sprinkling system on the inside of the moderator tank hatch. These were dealt with, but during this year's Oskarshamn revision, new indications of flaws were found some of the core sprinkler supports.

Due to these findings, Barsebäck already in advance of the revision, which will commence on August 24, has opened the shroud head in order to make a renewed inspection.

"The remaining supports have now been tested and we have verified the indications of flaws found via alternating current measurements. The indications turned out to be scratches from the cameras used during last year's inspection," says Christer Denker, in charge of the Barsebäck inspection.

Annual Barsebäck 2 outage 2000: optimised upkeep

This year's annual Barsebäck 2 revision starts August 24 and will not be a major one.

"Over several years running, we have performed major revisions. All upkeep is performed in accordance with a previously set schedule, and this year plans call for a minor revision," says Urban Voigt, in charge of the revision work.

Preventive upkeep has been optimised in order to meet the demands for safety and availability until next year's closedown, while simultaneously

the number of major projects/plant additions this year numbers some 30, as compared to the average of 40 to 50.

What will decide the time necessary for the closedown will be the work and controls necessary in the reactor enclosure. These will include the installation of instrumentation assemblies to measure cooling, core sipping, and the inspections of core spray risers, core grids and some fixings.

"Since the reactor was closed down already in May this year, we have performed certain preliminary work on the revision," says Jan Pålsson, unit manager of closedown and service operations. "Examples of this are that we have inspected the core from above as well as checked ventilators and pumps."

The Barsebäck revision will commence on August 24 and is expected to last for four weeks.

Increased staff turnover

The number of Barsebäck employees has decreased from 430 in December 1999, to 402 on June 30, 2000. Should staff turnover continue at the same rate, it will have more than doubled during 2000 as compared to 1999.

"What worries us is a possible lack of competence, not staff redundancies", says CEO Per Lindell. "In the long run, staff is expected to be reduced to some 350 employees due to the closedown of one reactor since November 30, 1999. We expect to manage this reduction by normal retirements and resignations and by replacing consultants with in-house staff."

Barsebäck Exposition opens during August

The permanent Barsebäck visitors' exhibition, the Exposition, will be kept open during the summer. Visitors are welcome weekdays from noon until 4 PM, Saturdays and Sundays from noon until 5 PM, until August 25th.

Swedish energy conversion evaluated: "Barsebäck electricity replaced by coal, CO₂ emissions increase"

The headline summarises the findings of two independent reports developed by KM Miljöteknik and COWI respectively, ordered by and delivered in May 2000, to the Department of Industry. The reports aim at evaluating the energy program voted on by parliament in 1997. This program intended to convert Swedish energy production to an "ecologically viable development", will not succeed.

According to the Department of industry, closing one of Sweden's twelve nuclear reactors will cost the government some SEK 8.3 billion. Simultaneously, more than SEK 9 billion has been invested in decreasing electricity consumption and supporting renewable energy production. Primarily, subventions have gone to biofuels and to wind power generators.

According to the 1997 parliament decision, the prerequisite for closing the second Barsebäck generator is that the reduction in energy can be compensated by a decrease in electricity consumption and by an increased electricity production based primarily in renewable sources. After reviewing the reports, Barsebäck Kraft has submitted its comments to the Department of industry. In summation, these comments are as follows:

Both consultant reports state that the prerequisites for closing the second Barsebäck reactor by July 1, 2001 will not have been met. Barsebäck Kraft

shares this evaluation and holds the opinion that the second Barsebäck reactor cannot be shut down prematurely. The planned for and engineered life expectancy of Barsebäck 2 is at least until 2017. Referring to the reports, Barsebäck Kraft gives the following reasons for continued operations:

- CO₂ emissions would increase by a minimum of 3 million tons per annum, or some 350 kilos per Swedish citizen;
- The reports show no account of increased emissions of other greenhouse gases, transformed into equivalents of CO₂, even though this accounting is demanded by the Swedish environmental goals;
- Both reports conclude that in the short run coal and in the long run fossil gas, not renewable energy sources, will replace nuclear power;
- Insufficient power – the risk of forced disconnection of consumers in Southern Sweden will increase, and on this point both reports are overly optimistic;
- The conversion to heating produced by biological fuels is very slow and already today, 30 per cent of the biological fuels consumed in Sweden are imported;
- Both reports as a whole make faulty comparisons. The current, biologically fuelled electricity output is compared to coal and is consequently given comparatively good environmental effects. However, considering the factual situation, comparison should be made to the actual environmental impact of Barsebäck, in which case virtually every possible action will reflect negatively on both climate and environment;
- Chances for reaching the production goals are optimistically overestimated in both reports. The consultants involved additionally note that assumed effect may be overestimated;
- The current low price of electricity seems destined to remain unchanged for the foreseeable future, a fact that does not stimulate investments in expensive alternatives to nuclear power in the absence of extremely generous subsidies. Nor can any major popular savings effort be assumed.

The conversion of the Swedish energy system: Effects on health and environment

The conversion of Swedish energy production decreed by government entails first of all the abolition of nuclear power and its replacement by a combination of other forms of energy and savings. The reason given for the conversion is that the system as a whole is to be more "ecologically viable", which is to say more supportive of health and a sound environment.

This all-encompassing change in system has however itself not been made subject to any analysis of its environmental consequences – i.e., a quantitative comparison between the effects on health and environment of current situation relative to that of its decreed successor.

One tool used within the EU for such comparisons is that of so-called external costs, which entail putting a monetary value on various damages to health and environment which are not included when the cost of electricity production is computed (EU ExternE).

This method has already been applied to a large number of extant or planned units of the production of electricity throughout Europe.

The main conclusions reached are:

- The use of coal entails higher external costs than other forms of energy.
- Natural gas used in modern power plants entails minor health effects, while the greenhouse effects dominate.
- Results for bioenergy cannot easily be generalised to internal Swedish conditions, particularly as they pertain to the use of bioenergy to supplant

electrical heating in one-family dwellings. It is therefore necessary to study the environmental effects of small-scale wood burning.

- Nuclear power entails lower external costs than any other form of energy. This is true regardless of how you compare ExternE results and regardless also of the inclusion of long-range effects in the case of nuclear power (equivalent long-range effects are not included in the data given for other forms of energy, nor for other pollutants than greenhouse gases).

From the ExternE, Professor Nils Starfeldt and Carl-Erik Wikdahl at the analysis group of Nuclear Safety and Training Center have concluded that the cost of closing down Barsebäck 1 as regards effects on health and environment will be in excess of SEK 1.5 billion annually.

You will find the ExternE site at <http://externe.jrc.es/>

New public opinion poll on Swedish attitudes to nuclear power: 80 per cent of the public want to retain Barsebäck!

A recent public opinion poll regarding Swedish attitudes to the utilisation of nuclear power in Sweden, presented by the TEMO institute, shows that public support for government policies in this regard is continually small.

The poll shows four out of five Swedes to support continued operations at existing nuclear power facilities, as opposed to only 17 per cent who support the government stand in favour of premature dismantling. For every political party, a majority of supporters prefer continued use of nuclear power to abolition.

More men than women (24 to 11 per cent) want further nuclear power facilities to be built as needed; more women than men (21 to 13 per cent) want nuclear power to be prematurely disbanded. However an equal number of both women and men (60 and 61 per cent respectively) are in favour of continued operations at the existing facilities.

When asked which environmental goal is most important, 69 percent of all respondents name the efforts not to increase the emission of greenhouse gases, while only 9 per cent view the dismantling of nuclear power as most important. The primary environmental goal is identical to supporters of every political party except the Swedish Green party, whose voters put abolition of nuclear power before protecting unexplored rivers.

The polling method was home interviews with a statistically representative sampling of Swedes aged 16 to 75. A total of 1,000 interviews were made from May 2 to May 25, 2000.

The TEMO poll in its entirety is published on the Barsebäck site at www.sydskraft.se/bkab

Decisions made regarding German nuclear power

On June 14 this year, a plan for the abolition of German nuclear power was accepted after drawn out negotiations between the power industry and the German government. The agreement can be viewed as a consensus, and consequently nuclear power is no longer a political issue.

The agreement is radically different from its Swedish counterpart. In Germany, each reactor is guaranteed 32 years of operation. Technical reactor lifetime in Germany has been accounted as 35 years. Production is not fixed for specific reactors; instead, producers are allowed to close older reactors in order to move production volume to the most profitable units.

The agreement also regulates the legislative actions of the German government during the remaining time period. The government has guaranteed not to increase safety regulations nor to impose further taxes diminis-

hing profitability. Additionally, transports of burned-out fuel as well as the construction of burned-out fuel storage capacity will begin.

In sum, the agreement grants some benefits to the German nuclear power industry. However, its effects on the environment will in the long run be negative. Today, German nuclear power replaces fossil fuels with emissions totalling some 170 million tons annually. This fact in conjunction with the recent agreement is deemed to make Germany's chances of fulfilling its obligations as a signatory to the 1997 United Nations Kyoto climate conference very small.

Preliminary selected communes accept deep storage

The inhabitants of all six communes* where Swedish Nuclear Fuel and Waste Management Company is currently performing so-called preparatory studies are willing to accept both test drillings and a possible permanent deep storage of burned-out nuclear fuel within their commune borders.

This is shown in a public opinion poll taken by the Swedish Gallup organisation during April and May of this year.

The six communes where SKB is performing preparatory studies are Hultsfred, Oskarshamn, Älvkarleby, Tierp, Nyköping, and Östhammar. Towards the end of the year, SKB will suggest where and in which fashion further studies - such as site analysis and site research - are to be made.

The Gallup poll comprised a total of 4,000 telephone interviews, 1,000 of which were sampled from the national Swedish population, the remaining 3,000 from the six communes included in the preparatory studies. The questions asked were:

- Would you or would you not accept that burned-out nuclear fuel was stored within your commune, should it be deemed suitable for this?
- Do you think that SKB should be allowed to continue with site research - which include test drillings - in order to prepare for storing burned-out nuclear fuel within your commune.

* NOTE: The commune is the smallest Swedish politically governed geographical unit; the 278 communes in the country vary widely both in size and number of inhabitants.

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