

Swedish programs of information on nuclear energy and evolution of the public opinion

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The Analysis Group

In the aftermath of Chernobyl it was clear for the Swedish nuclear industry that there was a need for correct information about radiation and reactor safety.

Sweden was hit by the Chernobyl fall out – in fact we were one of the countries outside the former Soviet Union that discovered that something had happened at a nuclear reactor – and newspapers and media produced headlines and articles, based upon completely unknown “facts” at that moment. However, the same mix of weak facts and confusing messages continued to be spread to the general public and politicians. (And it still works the same way, with the same procedures today – 20 years after the accident.)

In Sweden the question of Nuclear Energy has been discussed since the beginning of the 70`s and after the TMI-accident the parliament, after a referendum, decided that nuclear in Sweden should be phased out by 2010.

After the referendum the debate about nuclear decreased but the Chernobyl caused it to explode. Newspapers wrote horror stories and the lack of knowledge was obvious.

The Analysis Group was initiated by a few enthusiasts realising that decision makers and moulders of the opinion not always had access to information based on a scientific background and presented in an easy to understand way.

The idea was appreciated by the industry and the Analysis Group was founded in **1987** and organised within the Swedish Nuclear Training and Safety Center – a company owned by the Swedish NPPs.

Two of the key issues for the group were to cover a wide area in the nuclear field and to ensure members with high competence.

Experts with different competences were recruited covering:

- Radiation Protection
- Radiation Physics
- Radiation Biology
- Reactor Physics
- Reactor Safety
- Environmental Protection
- Information
- Public Analysis
- Operation of NPPs

Although owned by the nuclear industry the Analysis Group is independent and decides within the group what should be dealt with and in what format.

Members are recruited, not by their affiliation but only in respect of their competence and interest in nuclear issues.

The Analysis Group work in three major areas:

- Radiation and the effects of ionising radiation
 - Level of knowledge
 - The use of radiation in other areas e.g. medicine
 - Myths about radiation
 - Consequences of the Chernobyl accident
- Reactor safety
 - Reactor types and their different safety aspects
 - IAEA's nuclear safety convention
 - Safety systems, barriers etc.
 - International development
- Risk comparisons
 - Nuclear vs. other energy sources
 - External environment
 - Risk perception

There are also some limitations for us:

- Not to discuss or deal with issues concerning a specific Swedish NPP. Such matters should be dealt with by the NPP in question.
- Not to discuss matter concerning nuclear and other waste. For these issues a special organisation, SKB, is responsible.
- Not to enter into controversy and participate in the political debate.

The mission for the Analysis Group is to ensure that there exists written or other material and thus make sure that decision makers and moulders of opinion have access to reliable facts based on a scientific approach.

We should also inform about radiation, reactor safety and risk and the information should be written in such a way that it is easy to understand. This means that we shall avoid scientific mumbo jumbo and specific technical terms (or at least explain them if used).

In addition to the limitations above we are clearly limited to not make declarations that do not have scientific background.

Our main target groups are, as mention above, decision makers and moulders of the opinion. But we also strive to inform politicians, journalists, leader writers and employees at the Swedish NPPs. We primarily not aim for the general public even if some influence is desired.

The strengths of the group are that we perform a scientific analysis of facts and present it, verbal ore written, in an easy to understand language. Our integrity, free from influence from

the Swedish nuclear industry, has been acknowledged within the scientific community and created good will.

The competence of the members has resulted in a wide and important contact net. We correspond with scientists, journalists, politicians, nuclear industry and authorities. We also have contact with some major international organisations all for the sake to obtain facts and updated information.

In addition to our basic mission we also perform opinion polls twice a year to in order to follow how the attitude to nuclear among the general public. We also, on request, produce background material for articles for publishing as a part of the debate. This service is offered to politicians as well as to journalists.

The Analysis Group communicates mainly in two ways – printed publications and web site. Printed materials are either in the form of a Bakgrund (**Backgrounder**). It is a very thoroughly analyse of an issue of immediate importance. The other is what we call Fact sheets –comprehensive description of interesting issues and in addition to that some comments from the analyses group or from some external sources we use.

Some examples of recent Backgrounds are:

- The Nuclear Safety Convention
- Development of nuclear in the world
- Uranium – a sustainable energy source
- Is nuclear safe?

And examples of fact sheets:

- Development of Nuclear in Finland
- Atoms for peace
- Mox fuel in Swedish reactors
- Uranium – will it last?

All printed material, and some other as e.g. result of our opinion polls, is published at our web site (www.analys.se).

In addition we participate in seminars and workshops and on request in different discussions, making oral presentations or just participating as experts.

Present members of the analysis Group are:

Hans Ehdwall, chairman,	radiation protection
Agneta Rising,	environmental issues
Mats-Harms Ringdahl,	radiation genetics
Yngve Flodin	reactor safety
Gunnar Hovsenius	health-environment
Carl-Göran Lindvall	radiation hygien at NPPs
Carl-Erik Wikdal	global issues, political analysis and nuclear safety
Anders Pechan	communication
Martin Luthander	information on nuclear issues

Attitudes to nuclear in Sweden

It is probably known all over the world that Sweden has decided to phase out nuclear. It is a fact that there has been a majority in the Swedish parliament for that decision but little is known about the general public and their attitudes.

After the TMI accident, a referendum, concerning the future for nuclear, was held in Sweden. Three alternatives were presented, Line 1, Line 2 and line 3. Line 1 and 2 were almost identical calling for a sensible phase out which meant taking reactors already begun building into operation and run them for some time (the only difference was at the back side of the ballot-paper). Line 3 called for an immediate closure of existing reactors. There were no alternative for the continuous use of nuclear power.

Line 2 won the referendum and it was later decided in the parliament that all reactors should be phased out until 2010 to be replaced by some indefinite energy alternatives.

At the time for the referendum there was a strong opinion against nuclear but the social democrats argument (Line 2) managed to secure electricity for the future – at least to 2010.

Since the TMI-accident and the referendum, the debate about nuclear decreased and did so until the Chernobyl accident. This was also true for the attitudes to nuclear among the Swedish general public. After Chernobyl the resistance to nuclear has decreased and today we have a wide acceptance to nuclear.

The opinion in the parliament differs from the public opinion. Since the beginning of the nuclear era in Sweden the Center party, former Agricultural party, has been against nuclear and were one of the driving forces behind the resistance to nuclear. Later on the Left party, former Communist party, joined the resistance but it was not until the TMI accident the Social democrats turned against nuclear. These three parties made in (February 1997) an agreement to phase out nuclear, first starting with the Barsebäck 1 reactor and some years later Barsebäck 2. Barsebäck 1 was shut down in 1999 and Barsebäck 2 in 2005. This political agreement is still valid and according to that the closure of an additional reactor should be considered in a few years to come.

The most pro-nuclear party is the Liberals and then comes the Conservatives and the Christ Democrats. The Green party is of course against nuclear but although acting as a support party for the governing Social Democrats they have no role in the game of nuclear.?

The interest for nuclear issues is not very high compared to other issues. An opinion poll made in November 2005 shows that nuclear (or more correct energy) is ranked as number 15 out of 20 on a list of important issues. (See figure 1).

The Analysis Group has followed the Swedish opinion since the late 80's. From a very low support right after Chernobyl, only 30 percent, it had increased to round 60 percent in the 1990 and kept that level, with smaller fluctuations until 1997 (see figure 2)

After the three party decisions 1997, our poll questions were reformulated and included now also attitudes to other energy alternatives.

Figure 1.
How important are the following?

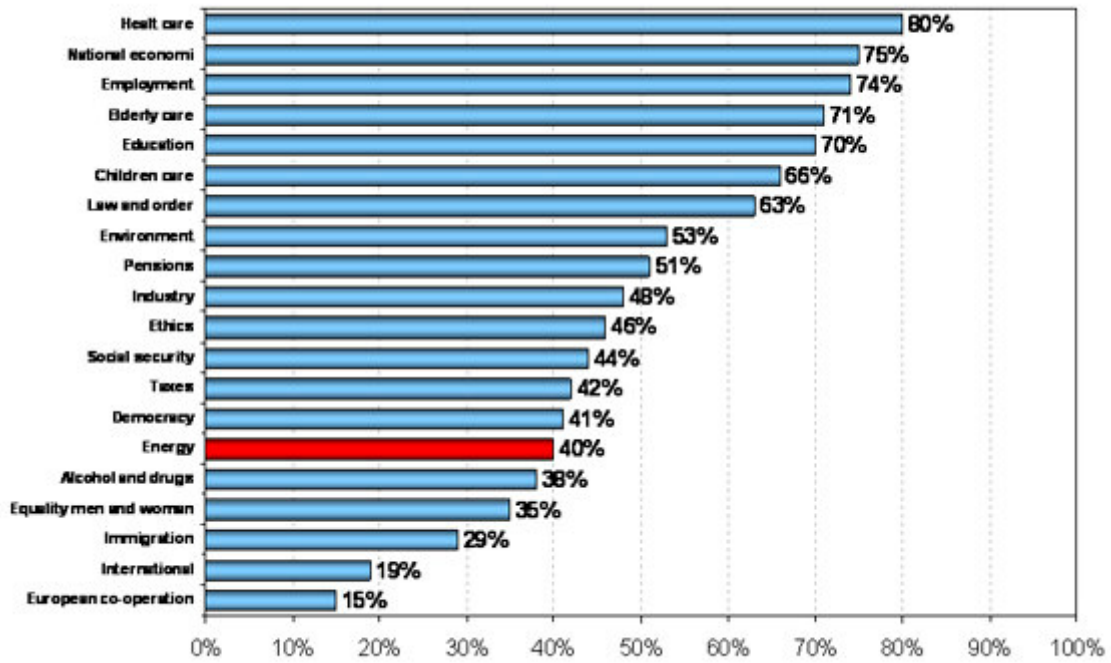
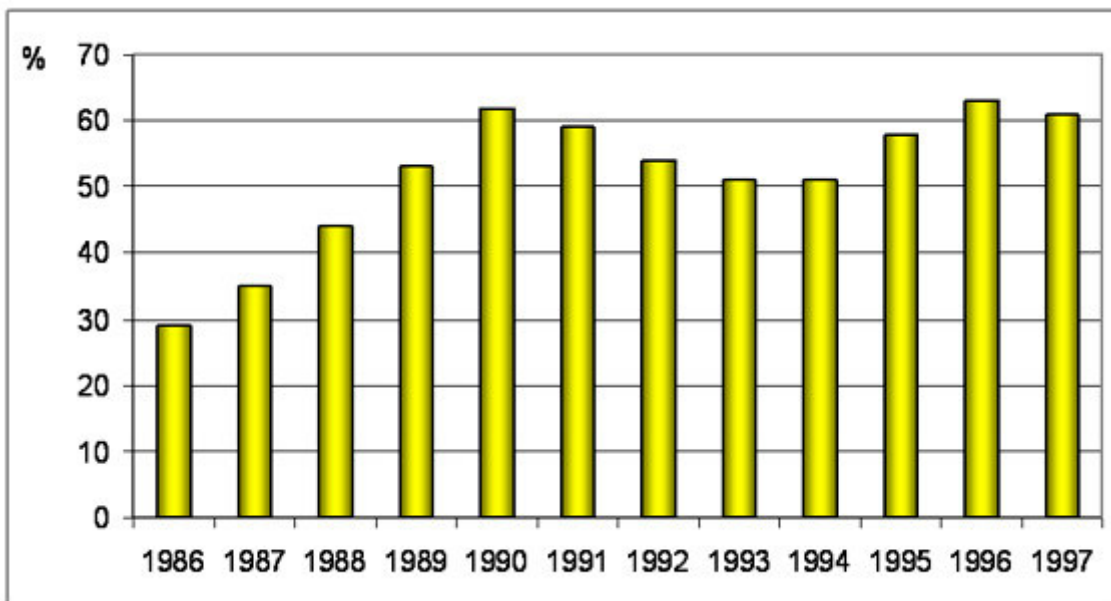


Figure 2.
The acceptance for use of nuclear after 2010.



The first question asked was:

What is your personal view of the use of nuclear power in Sweden? Should we...

- *phase out nuclear power production in accordance with the Government's decision to close reactors, although the surveillance inspectorates do not regard it as necessary for safety reasons?*
- *use nuclear power until the present reactors do need to be closed on safety or cost grounds?*
- *continue with nuclear power production and replace the existing ones when they have reached the ends of their lives?*
- *develop nuclear power production and build new and more reactors if necessary?*
- *doubtful, don't know*

and the second:

The parliament has made decisions on different environmental objectives. Which of the following objectives is most important to you?

- *phase out nuclear power?*
- *protect the remaining undeveloped rivers against hydro-electric power?*
- *prevent increase of emissions of greenhouse gases?*
- *doubtful, don't know?*

The last poll was made in November 2005 and showed almost the same pattern as earlier polls (see fig 3).

The result shows that the opinion against nuclear (phase out) is about 20 % while those who in one way or another want to keep nuclear are almost 70 %. 38 % want to keep the existing reactors until they reach their operational lifetime, 24 % want to replace nuclear power reactors taken out of production with new reactors and 15 % want to increase the number of Swedish reactors.

This poll differs a little from the previous ones as the resistance against nuclear has increased a little and those waning to keep the nuclear option has decreased.

Women are in a larger extent more against nuclear than men. This is particularly obvious in the two extreme questions – phasing out respectively develop nuclear. While only 12 % of the ~~men~~ male citizens want to phase out the corresponding figure for women is 26 %. The difference is even larger when it comes to develop nuclear. Only 8 % of the women want to see additional reactors while 23 % of the men are willing to do so. For the middle alternatives the difference between men and women is small.

The distribution within the political parties differs a lot from the views in the parliament. Within the three “phase out” parties, Social Democrats, Center Party and Left Party, it is only in the Left Party there is a majority (53 %) for the official party line. Among sympathizers among Social Democrats and Center Partyists about 20 % want to phase out. (figure 4)

Figure 3.
Result of the opinion poll November 2005.

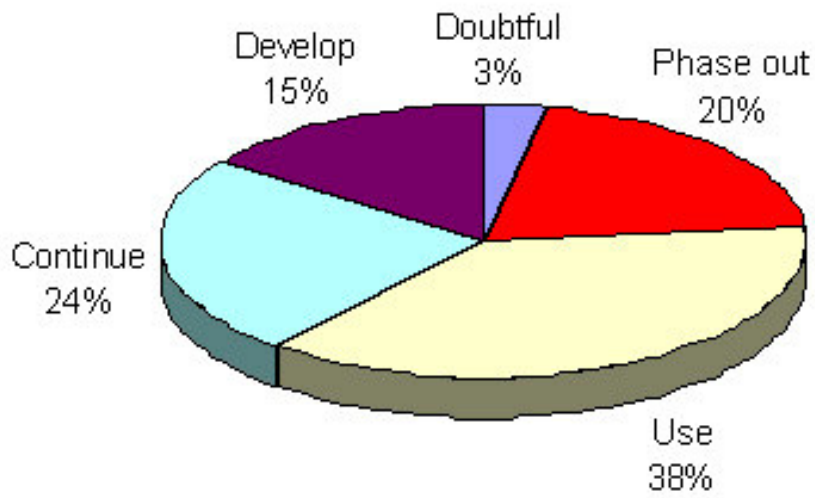


Figure 4.
Distribution among political parties.

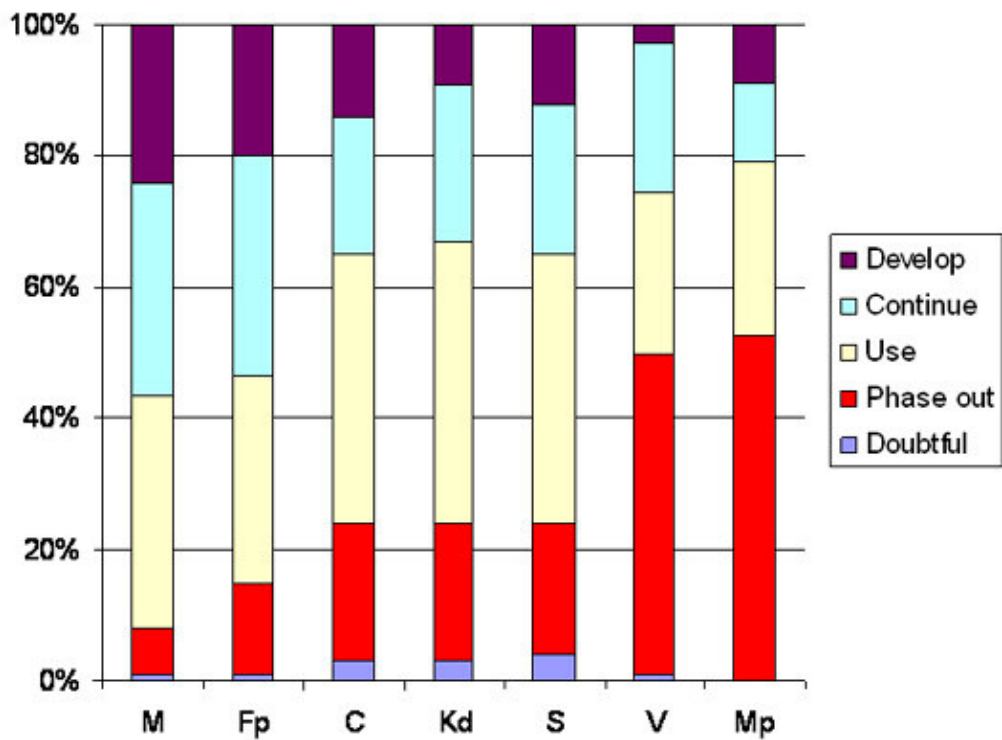


Figure 5 shows the development of the opinion since November 2001. The figure shows some minor fluctuations – mostly within the non-phase out alternatives. In figure 6 the three pro nuclear alternatives have been added thus making it more clear how the situation looks like.

As a rough estimate you can say that one out of five Swedes is against nuclear and want a quick phase out while four out of five want to keep nuclear in one way or another.

When it comes to the environmental targets decided by the Swedish parliament the most important target is not to increase the release of green house gases (80 % in last poll). Only 8 % consider phasing out nuclear is the most important target (figure 7).

Figure 8 shows answers on this question since 2001 and it is clear that the concern for the environment in respect of long term effects of burning fossil fuels is increasing.

In connection to the last poll (November 2005) additional questions about the closure of Barsebäck and other reactors was asked. (figure 9)

60 % felt the closure of Barsebäck was bad and 30 % that it was good. On the question whether additional reactors should be closed in the future 65 % were against and 25 % for. Also here there is a significant difference between men and women (figure 10).

Figure 5.
Result of last 8 polls.

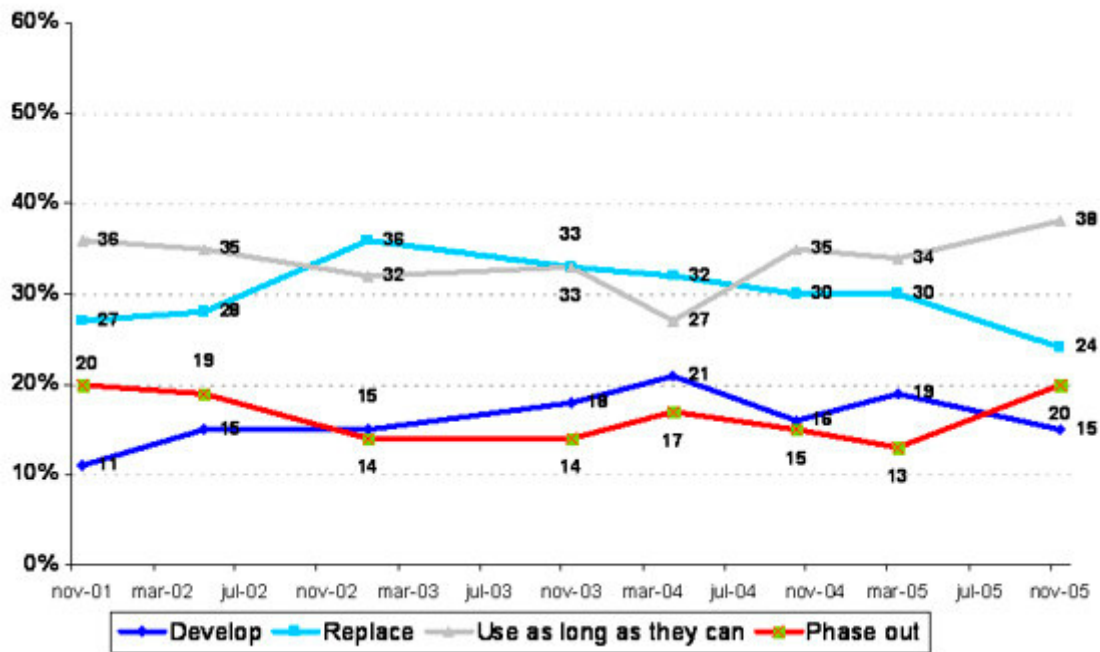


Fig 6
For or against Nuclear power

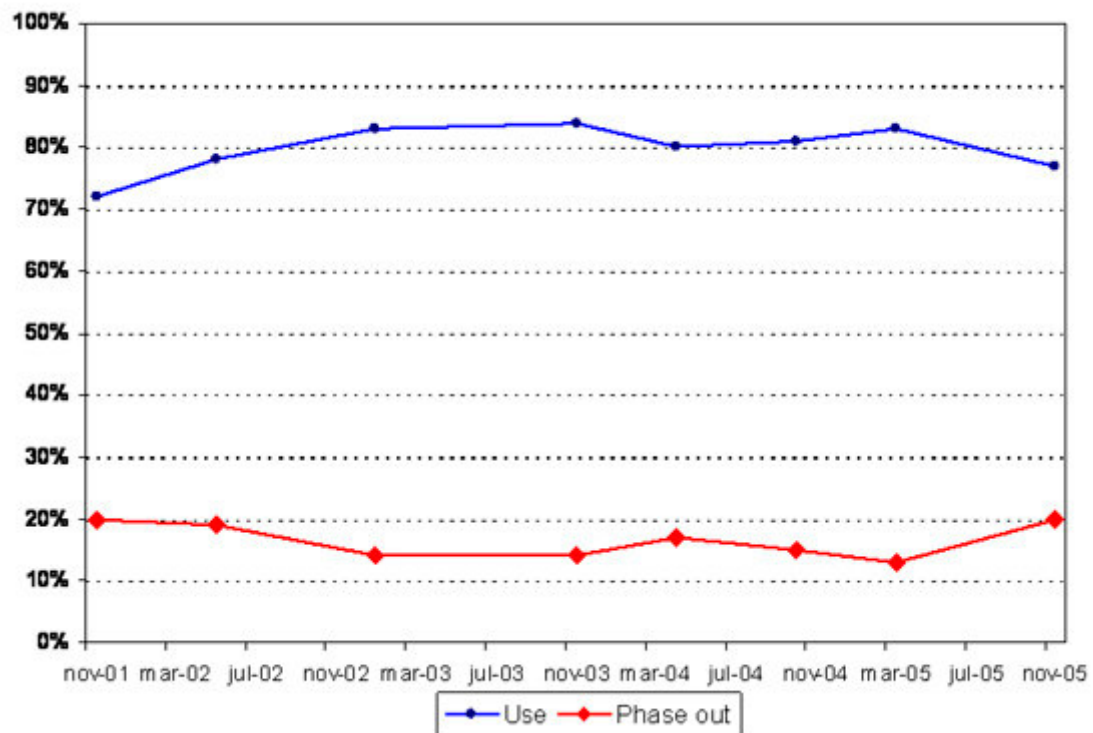


Figure 7.
Environmental targets – last poll.

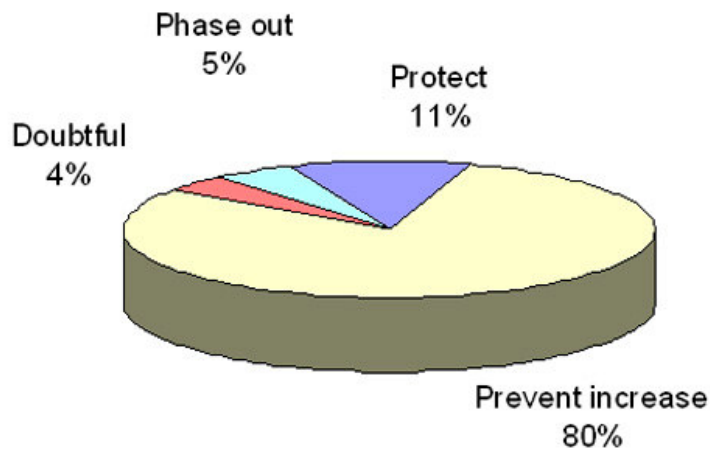


Figure 8
Environmental targets - - since 1997

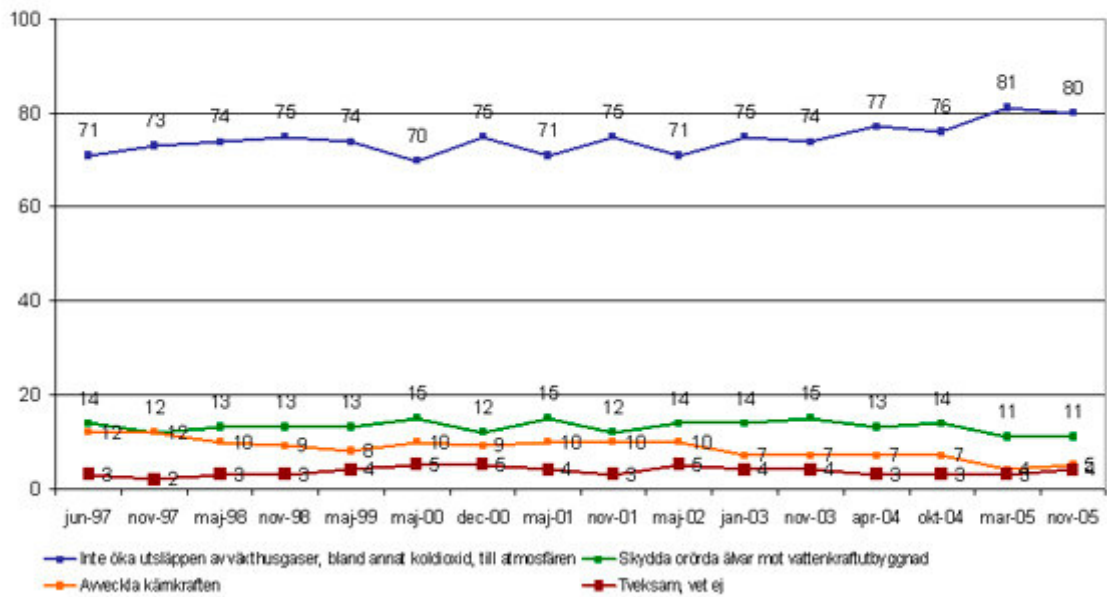


Figure 9.
What people think about the closure of Barsebäck.

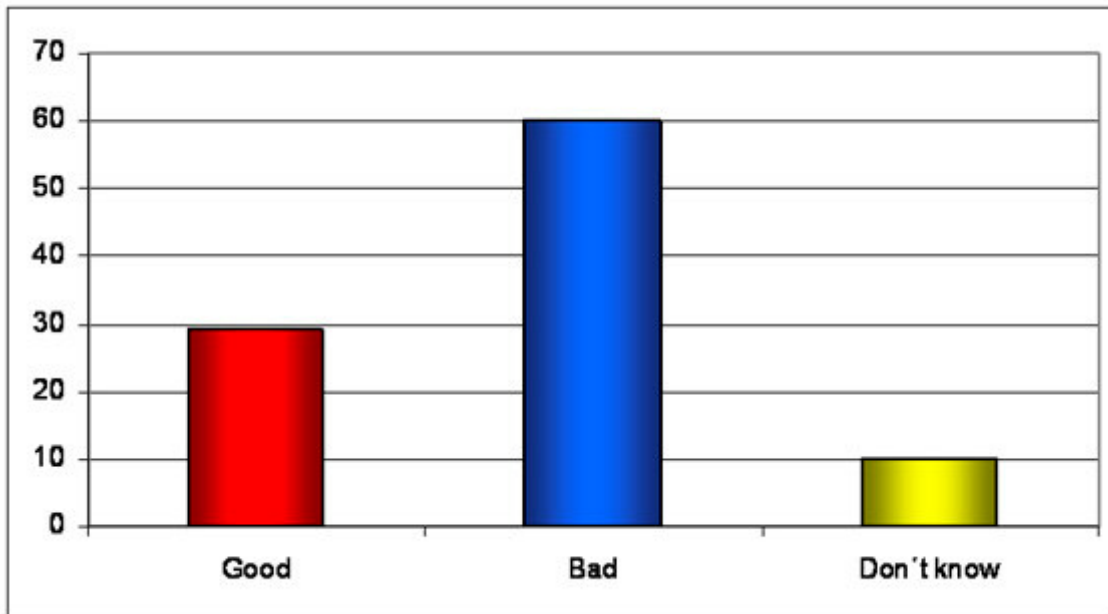


Figure 10
Should additional reactors be closed in a near future?

