1979

A Nuclear Power Station for Ireland?

Sinn Féin The Workers Party

A NUCLEAR POWER STATION FOR IRELAND?

The Minister for Industry, Commerce and Energy has decided that a Nuclear Power Station should be built at Carnsore Point, Co. Wexford. He will shortly ask the government to confirm his decision. Sinn Féin The Workers' Party believes that this is a bad decision. In this leaflet we set out the clear economic grounds on which the decision will be contested by our Party.

Our opposition is based on the following main arguments:

(1) A nuclear power station is very costly to build. Three years ago the figure mentioned in scientific and business publications was £200 millions. Current ESB estimates are £350 million. By the time construction starts the cost will be in the region of £500 million.

(2) It would force us to depend on a costly fuel — uranium — which must be imported and which is in scarce supply.

(3) Nuclear power stations have not proved to be as efficient as the hopes expressed about their performance, and the extravagant claims made several years ago. They have not provided cheap electricity.

(4) Alternative native sources of energy are available.

We must make certain that a decision is not now made to depend on uranium, a fuel certain to become more expensive and which has the disadvantage of being in scarce supply. We must exert pressure on the Government to adopt the alternative energy options available to us.

WHAT IS NUCLEAR POWER WHEN APPLIED TO THE GENERATION OF ELECTRICITY?

It is a means of producing steam. Steam can also be produced by burning turf, coal, timber of fuel oil. The technology is different but in all cases it is steam which spins the turbine.

Ireland needs to produce much more electricity than at present in order to industrialise. It is impossible to create full employment unless we industrialise on a very extensive scale.

A zinc smelter, for example, using the electrolytic method of smelting requires great amounts of electricity.

Is it practical to use fuels other than uranium to raise enough steam in order to produce the required amounts of electricity? What fuels can we use?

FUEL OIL

One obvious choice is fuel oil. At present the ESB buy supplies of fuel oil from the USSR through the firm of Tedcastle; they could, of course, buy it directly, and thus get it cheaper.

Fuel oil is the substance which is left over after all other products have been extracted from crude oil. If we had sufficient oil refining capacity on the national territory we could import crude oil and refine it ourselves producing in the process, supplies of Naphtha for cheap domestic gas and a petro-chemicals industry, and getting fuel oil for electricity generating and for industrial use. Holland produces the cheapest electricity in Europe in this way.

The sensible course to follow in relation to oil burning power stations is to build oil refineries which could supply cheap fuel oil as a by-product. An increase in Ireland's oil refining capacity has always been fiercely resisted by the giant oil companies — Esso, Texaco, BP and Shell — who control the oil market in Ireland. The most recent example was the Dublin Bay Oil Refinery.

We have a proven oil resource off the south Irish coast which is capable of producing at least 1,500 barrels of oil per day. This is uneconomic as far as the major oil companies are concerned. The government has refused to allow the ESB to enter the oil exploration business. Our oil resources are given away to the multi national oil companies while the ESB is told to build a nuclear station.

TURF

We can greatly expand turf production for turf-fired power stations. It is at present the cheapest fuel for this purpose. Turf is produced by Bord na Mona and modern methods of production have been used by this state company to exploit our turf resources in the national interest.

COAL

The ESB have one coal-fired power station at Arigna. Fuel for this station is purchased from local private enterprise who produce it by methods which are primitive and which would have been considered primitive methods of producing coal in almost any part of the world many years ago!

The Arigna station is old so the cost of producing electricity at that particular station, when all its special problems are taken into account, is not a fair measure of the cost of producing electricity by coal in Ireland.

Ireland has extensive reserves of low-grade coal. The state has not carried out research on methods to make use of our extensive coal reserves in order to produce electricity. Extensive untapped coal resources exist in Counties Kerry, Cork, Limerick, Tipperary, Clare and Kilkenny. Last year a schoolgirl of 15 years won a young scientist of the year award for proving that a coalfield in Co. Tipperary is still a viable mining proposition.

The geological survey office should be provided with sufficient funds to investigate our coal resources. Coal is a proven Irish resource; it shows as a large shaded area on the geological map of Ireland and is listed under the code number 'nineteen'.

Bord na Mona should be allowed to apply to Irish coal resources the willingness to explore new methods of production, to modernise — the same sort of approach which they have applied to turf production in order to exploit our bogs.

Some experiments are being carried out by the ESB on methods to burn our low grade coal in the Leitrim area but no work is being done on the problem of extracting our native coal resources by efficient, ultra-modern methods of production.

Carnsore Point, when one considers that it is sited on a point at the edge of the sea, and that the wind in Ireland blows from a South-Westerly direction, is an ideal site for a coal-burning power station.

URANIUM AND A NUCLEAR POWER STATION

For some months past the Research Section of our Party's Economic Affairs Department has been examining the supply position of uranium ore and its cost. The result of our research has convinced us that it would be madness, from an economic point of view, to be dependant on Nuclear Power to provide electricity. The following facts are well known in the U.S. but have got no publicity here. Is this deliberate?

Uranium, the fuel used in all nuclear power stations, is in short supply. The evidence shows that it will increase in price much more rapidly than other fuels.

In the USA low priced uranium has a reserve of only 690,000 tons. Each 1,000 MW reactor requires 11,150 tons of uranium during a 40 years' life expectancy. The USA has enough low-priced uranium for only 62 power stations.

In the late 1960's the "General Electric

Company" projected future uranium prices over a long term would be around $4 to $4.50 a pound. By early 1976 uranium for immediate delivery had reached $37 a pound, almost nine times the "General Electric" estimate.

If second grade uranium is mined the cost is estimated at between $120 and $140 a pound. It is true that fuel costs are traditionally a small part of the overall costs of delivering nuclear power but when cost increases of the magnitude necessary in the next few years takes place uranium will be uncompetitive with coal and many other energy sources.

Uranium can be extracted from various grades of shale, granite and even from seawater. The cost of extracting uranium from shale varies from $150 a pound to $200. Extraction costs for granite are over $200 a pound and from seawater over $500 a pound. Naturally, these costs will not stay in the same place for the rest of this century; they will certainly increase.

HAS NUCLEAR POWER BEEN A SUCCESS IN THE USA?

"The Westinghouse Corporation" is the main supplier of nuclear fuel in the western world. It has announced that it will be unable to supply twenty utilities which had contracted with Westinghouse for uranium ore deliveries in the 1980's. Westinghouse gave as a reason for the cut-off in supplies — "the unprofitability of the uranium supply business due to dramatic uranium price increases".

Some USA electricity companies are cancelling their plans for additional nuclear power stations. The South Carolina Electricity and Gas Company give as a reason for their change of plan — "the failure to find an acceptable supplier of uranium ore and because of increased nuclear construction costs".

The USA has been selling an ever decreasing number of nuclear power stations outside USA; last year not one such station was sold.

WHAT TYPE OF NUCLEAR REACTOR ARE THEY THINKING ABOUT?

The type of nuclear reactor being considered for Ireland is called "A Light-Water Reactor". It uses ordinary tap-water for converting into steam and for cooling and controlling the fission process.

This type of reactor, favoured in the United States, is not considered to be as safe as a reactor using "Heavy Water". The "Heavy Water Reactor" is preferred in Canada. In Ireland the "Heavy Water Reactor" would be more expensive to operate; it would mean importing "heavy water" as well as uranium. "Heavy Water" is expensive to manufacture; the giant Bruce Plant at Grace Bay, Nova Scotia, Canada, can produce only 800 tons of "Heavy Water" in one year.

The British reactors use graphide and carbon dioxide gas under pressure to do the jobs done by "heavy water" in Canadian reactors and "light water" in reactors in the United States.

Light Water Reactors are either "Pressurised Water Reactors" (PWR) or "Boiling Water Reactors" (BWR). In PWR's super-heated water, under pressure to prevent it boiling, is piped through a boiler to convert the water not under such pressure into steam. The steam then turns the turbine.

The BWR boils water inside the reactor and produces steam which then turns the turbine.

Light Water Reactors need to be closed down and refueled every year. The fuel used is enriched uranium because light water absorbs many more nutrons than does heavy water.

HOW DOES A REACTOR WORK

The fission reactor of a large nuclear plant is a bullet-shaped pressurised chamber more than 40 feet high and more than 14 feet in diameter. Its walls are usually made of steel, at least eight inches thick. About one hundred tons of uranium fuel are suspended in racks within this chamber.

The fuel is in the form of cylindrical uranium dioxide pellets about half an inch in length and one half inch in diameter. The pellets are packed inside twelve-foot-long tubes made of zirconium-alloy metal, which have spaces between them so water can circulate along their lengths.

About forty thousand fuel rods, packed with bundles of fifty to two hundred rods each, are used to fuel a large reactor.

The intensity of the fission reaction depends on many factors, ,including the degree of enrichment of the fuel, its mass, and its physical arrangement in a given volume. When fuel is properly loaded into a reactor a carefully controlled amount of fission occurs.

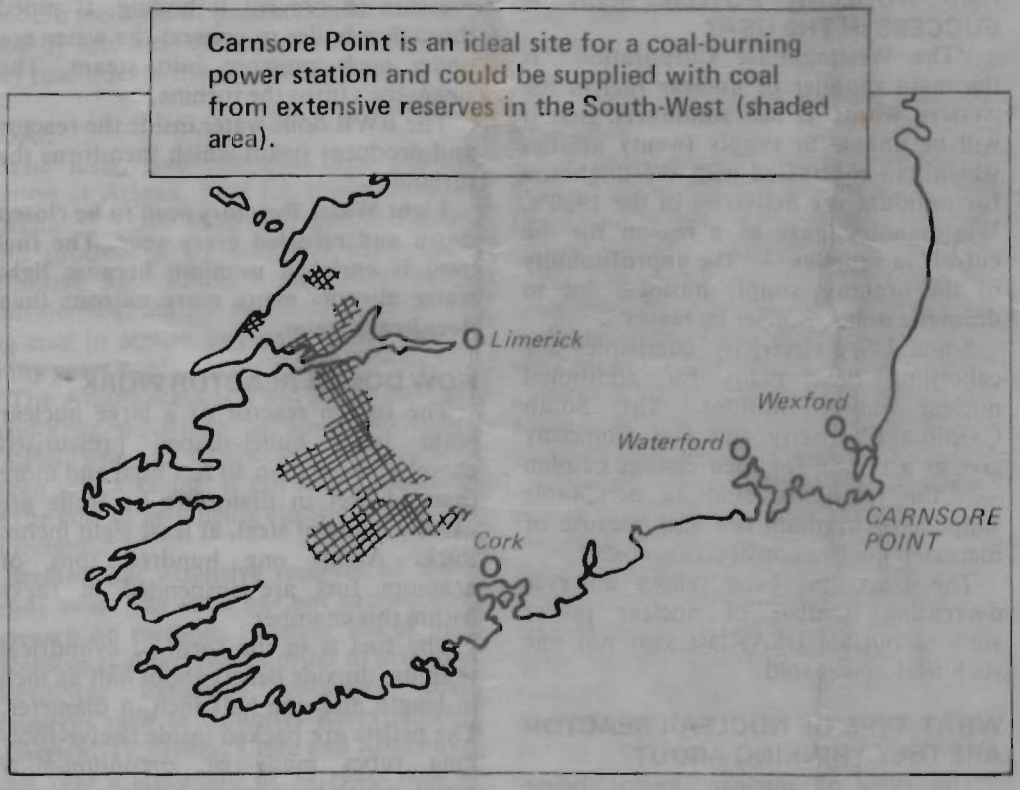
Normally the fuel load is surrounded by water under enormous pressure; about 2,250 pounds per square inch in Pressurised Water Reactors and 1,000 pounds per square inch in Boiling Water Reactors.

HOW OUR ATTITUDE DIFFERS FROM SOME OF THOSE OPPOSED TO NUCLEAR POWER

Some people engaged in the campaign against the building of a nuclear power station at Carnsore Point will certainly discredit the campaign because they have long records of opposition to industrial development and job creation. Sinn Féin The Workers' Party has fought and exposed the middle class anti-jobs lobby — the "community councillor" type of resistence to industrialisation.

We campaign for industrial development and jobs creation and do not oppose new technology without good reason. Ireland needs plentiful supplies of electricity in order to industrialise and it is because we believe that nuclear power will not give us cheap electricity that we oppose at the present time the building of a nuclear power station at Carnsore Point.

We support the idea of building a giant power station on the Carnsore Point site using fuels other than nuclear. We recommend the development of our coal reserves for generating electricity.



Carnsore Point is an ideal site for a coal-burning power station and could be supplied with coal from extensive reserves in the South-West (shaded area).

Published by Sinn Féin The Workers' Party, 30 Gardiner Place, Dublin 1.