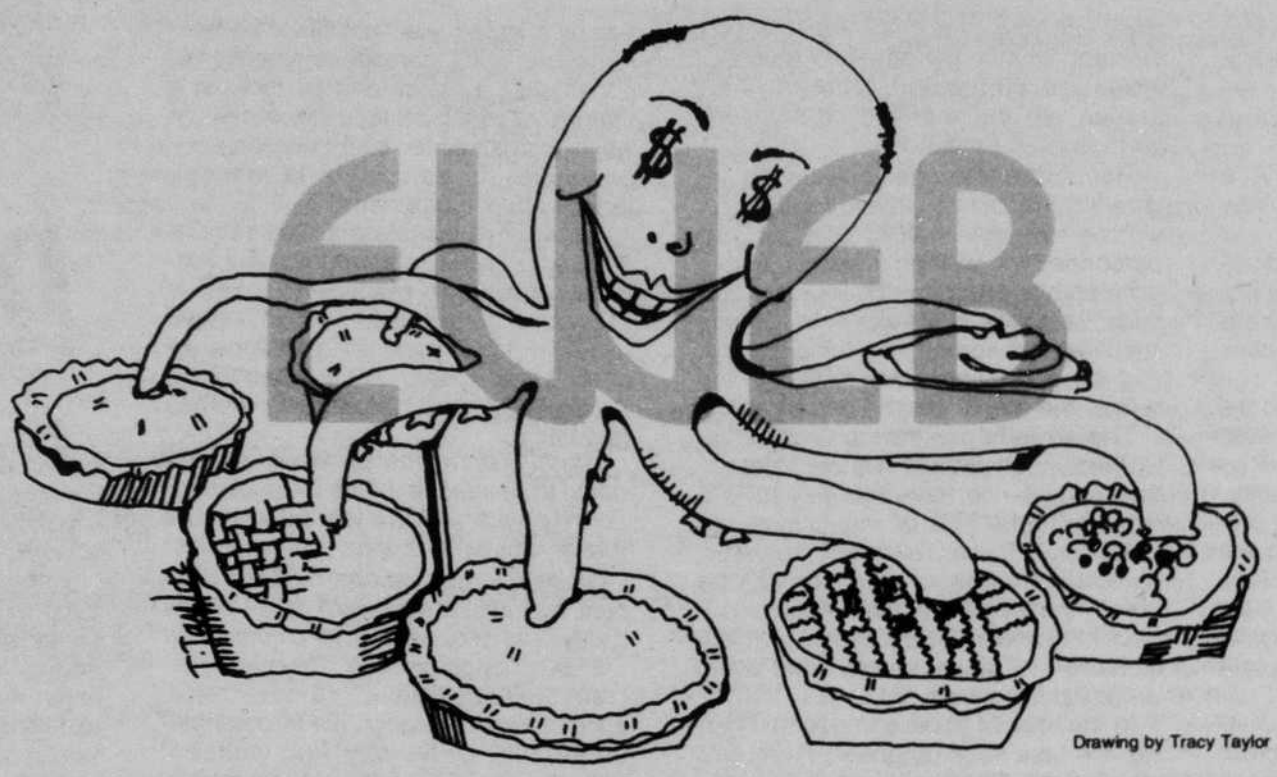
Future energy uncertain for Eugene

By CHRIS JUNKIN
Of the Emerald

Relatively cheap electricity is still available to Eugene customers, but major decisions concerning scarcer and more uncertain future supplies must be made in the next few years by both suppliers and users.

Eugene's public utility, the Eugene Water and Electric Board (EWEB), will need to decide within a year the uses it will make of its 30 per cent share of the new Trojan nuclear plant near Portland, according to EWEB board member John Reynolds.

Of the Trojan power EWEB owns, only slightly more than 50 per cent is available to EWEB customers, since the rest is contracted out for use by other utilities until 1983. The future of these contracts must be determined shortly by the board to allow the other utilities time to find alternate energy sources.



Drawing by Tracy Taylor

EWEB currently sells its share of Trojan power to the Bonneville Power Administration (BPA), an agency of the federal government. They use it for their basic generating power along with their hydroelectric plants. The higher nuclear power costs are thus spread among all BPA's electricity customers, effectively keeping rates lower for EWEB since all power supply costs are averaged in.

The current contract calls for this power to flow directly to Bonneville until 1983, though EWEB could seek to renegotiate it if the power is needed specifically in Eugene, according to Reynolds.

BPA District Manager Ladd Sutton believes EWEB will continue sending Trojan power to the BPA since their electricity costs will be cheaper, and since EWEB could have problems replacing the power from Trojan when the plant is shut down for refueling or maintenance.

Approximately 80 per cent of EWEB's power supply currently comes from the BPA network at prices far less than the Trojan nuclear power would cost alone. However, the BPA recently notified its preference customers, including EWEB, that it cannot guarantee the capacity to keep up with demand growth after 1983. Utility customers will then be guaranteed an amount approximating the electricity bought in 1982.

Since Eugene customers are still using the cheap hydro power from the BPA, and not the more expensive power from Trojan, the attendant rate increases with use of the more costly power source have not yet been implemented, according to EWEB spokesman Glenn Stadler. Nevertheless, EWEB rates have increased by 40 per cent during the past five years as a result of three electrical rate increases since 1971.

Trojan began producing electricity from its reactor late last year, but has been shut down for the summer since its power cannot compete with the lower cost of hydro power available from BPA, available in excess because of heavy stream flows this year. However, the idle plant still incurs costs while producing no revenue, and these costs will probably find their way into EWEB consumers pocketbooks before Trojan power reaches their homes. The plant's idle costs would have been greater had it been completed on time two years ago.

The heavy stream flows behind the dams have also allowed massive amounts of power to be shipped to the Southwest from Northwest utilities. A total of nearly nine million megawatt/hours of electricity was sent along the "North-South Tie-in" transmission system from the Northwest from July 1975 to February 1976, an amount equivalent to roughly 15 million barrels of oil.

Such sales to the Southwest prove advantageous for both seller and customer, since the Northwest utilities sell the power for more than it costs them to buy, while the Southwest utilities get the power for less than their oil or coal power plants. Any shortages BPA may experience are to be met by electricity sent from the Southwest's oil or coal-fired power plants.

However, the BPA forecast for the next 11 years in the Northwest calls for energy deficits every year if critical stream flow conditions occur similar to those in 1973. That year, a light snow pack caused water shortages in much of the state. Additional deficits may result from delays in the construction of thermal generating units (coal, oil or nuclear) which will account for 97 per cent of new energy generating capacity in the next ten years. Nearly 2,000 megawatts of the new capacity will come from large coal plants in Wyoming and Montana.

BPA's Sutton stressed that the sales to the Southwest are strictly surplus power that would be wasted otherwise, and the Northwest area has absolute preference to that power as stated in the enabling legislation for the "Tie-in" transmission lines. The surpluses have been great enough, though, that another line is being currently studied that would connect BPA power with the Phoenix area.

If a critical year occurred, the BPA has the power to give several months notice to the Southwest utilities and then cut off the power.

However, the Southwest has come to rely heavily on Northwest surplus power, and if shortages appear imminent, political pressure may force a change in the law that would eliminate the preference currently given all Northwest consumers, according to Sutton.

EWEB involvement in nuclear power dates from 1968 when city residents passed a bond issue authorizing $225 million for participation in one plant, and ownership in another thermal electrical generating plant. According to Stadler, these were implied to be nuclear plants in the bond proposal.

Though the city passed a temporary moratorium on nuclear plants near the city in 1970, a bond issue specifically providing $75 million for Trojan participation passed in 1971. Another $57 million has since been authorized, putting the total EWEB investment in Trojan at $132 million, "a large sum for a small utility," according to Stadler.

He added that the EWEB Board of Commissioners decided to "go nuclear" since nuclear power appeared to be the least expensive power of the future. The board looked into coal and oil plants, but could not get assurances of resource supply.

Since Trojan has not operated at full power except for one 100-hour stretch last spring, its actual electrical costs are yet to be determined. Nationwide figures for operating costs have shown nuclear power to be less expensive than oil, and possibly less than coal, depending on which figures are used, according to energy economist Ralph Monteen. He added that without the massive federal subsidies currently given nuclear power, it would probably not be economically competitive.

Because of the low cost of hydropower electricity, more homes are heated with electrical heat in the Pacific Northwest than in other regions, driving electrical consumption per capita to nearly twice the national average. Currently, space heating is the key residential electricity use, according to Reynolds, since 63 per cent of Eugene homes have electrical heat, and most new homes have it installed.

Electrical heating systems that use power produced by thermal generating stations are inherently inefficient since the fuel is burned in a power plant that converts less than 40 per cent of the potential energy into electricity. Direct use of oil or gas provides home heating at efficiencies closer to 100 per cent and are less energy intensive, according to Monteen.

Solar power is also available to heat homes and commercial buildings in the area, and its increased use could lower the additional power EWEB will need to supply in the future.

Reynolds, an architecture professor at the University, stressed that solar space and water heating technology is presently available, and said EWEB should more actively seek to change new home heating systems from electricity to solar.

He believes that EWEB, as a public utility that recognizes the rising costs of future power sources to consumers, has a responsibility to encourage the most efficient electrical uses possible, which means using solar energy for water and space heat, and reserving electricity for uses that cannot be easily provided by other sources.

EWEB has conducted a conservation program since 1971, primarily through a gradual restructuring of rates that have eliminated the discounts for large users. All EWEB electricity is now sold at a flat rate in three categories: residential, commercial, and large-use. Residential billing is by kilowatt/hour, while commercial is measured in both killowatt/hour and total killowatts. The large-user category is for three Eugene customers which produce some of their own power, available to EWEB in a time of shortage.

Utilities are required by law to instantly provide whatever electricity is demanded by its customers. "Base-load demand" is the number of kilowatts generally demanded by the aggregate of consumers at all hours, while "peak-load demand" refers to the extra electricity demanded at certain times when more consumers use power. Daily peaks generally occur around 5 p.m.

Reynolds believes that as the fuels (such as nuclear) needed to cover the increasing peak-load levels become more expensive, rate structures will need to be changed to make the peak-users pay more for the power.

Stadler estimates that a Trojan-like project begun today would cost three times more than the current plant. Experts also believe that fuel costs will be constantly escalating in nuclear plants because of the depletion of domestic uranium supplies.

Stadler said that EWEB is experimenting with industrial steam tie-ins, such as the pilot project at Weyerhaeuser, and with a geothermal project in Idaho. Their funding of research into the nuclear fast breeder reactor was stopped in 1975, and plans for an EWEB-managed nuclear plant near Florence were dropped in 1974.

The "EWEB-Weyerhaeuser Energy Center" in Springfield, to be completed in November, will use Weyerhaeuser's closed cycle steam system to turn an EWEB turbine, producing an estimated 250-million kilowatts/hour per year, or 52 megawatts (EWEB uses roughly 400 megawatts currently). The power produced will be sent to the Los Angeles area until at least 1983, after which EWEB has an option to keep the electricity for its customers.

EWEB is eyeing a dozen similar industrial steam facilities for possible turbine tie-ins, as well as flood-control/recreational dams without electrical generating facilities in the region for their future power sources, along with their share of Trojan. The industrial or dam sites represent the most efficient and environmentally sound energy sources still available, states Stadler.

EWEB has also initiated a solar research project to determine the feasibility of solar heating; a wind-power project with wind-mills by the McKenzie River, and experiments with gas production from wood wastes. The utility is also encouraging use of the "Arkansas Plan" in home construction, which utilizes two by six inch beams in place of the standard two by four-inch and greater use of insulation. The plan can provide up to 60 per cent savings in heating bills for consumers, and a corresponding savings in energy consumed in space heating.

Yugoslavian city serves as center for scholars

University students and faculty who wish to study with some of the world's leading scholars may do so at low cost this year through the University's membership in the Inter-University Centre of Post-Graduate Studies in Dubrovnik, Yugoslavia.

Steven Deutsch, a University sociology professor, is the campus coordinator for the Centre. He says Dubrovnik's history, location, climate and people make the city a beautiful place for students.

Dubrovnik is a walled city in the Adriatic Sea built in the early middle ages. Deutsch cites the area's rich heritage of art and architecture, and describes Dubrovnik as "a boom tourist city."

The Centre is a consortium of more than 50 universities throughout the world. It offers a wide spectrum of courses in the humanities and sciences at exceptionally low cost, usually $20 for a three to four week session.

Living expenses are also reasonable, averaging $6-$10 per day for room and board.

The biggest single expense for the University student, of course, is air fare. Ralph Malloy, director of the University's International Center, says round trip student fare from Portland is $721.

University credit may be obtained for the seminars, most of which are conducted in English.

The complete schedule of fall and spring courses, colloquia and conferences is posted on the door of Deutsch's office, 616 PLC. Interested students and faculty may also contact Deutsch at 686-5490.