POWER

Peoples Organization for Washington Energy Resources

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THE SO-CALLED "NO LOSERS" TEST IS REALLY A "HARDLY ANY WINNERS" TEST

Most Northwest utility-sponsored conservation financing programs utilize what is known as the "no losers" test in determining the appropriate level of utility subsidy of conservation measures. This test is intended to insure that non-participating ratepayers are made no worse off as a result of utility subsidies for energy conservation measures implemented by other ratepayers.

The "no losers" test requires that utilities not provide a subsidy to conservation which exceeds the difference between current average rates and the marginal cost of new resources. A typical example is Puget Power's conservation loan program, which provides financing where the cost to the Company of the conservation measure is less than 30 mills (3 cents) per kwh. This is determined by subtracting current average rates (about 3 cents/kwh) from the estimated cost of power from Colstrip 3&4 (about 6 cents/kwh.)

Utilities argue that, absent a "no losers" test, non-participating ratepayers may have higher rates than if generating projects had been built instead. This is because generating projects increase the amount of power which the utility can sell (even though these sales are made at average cost, rather than marginal cost), thereby providing revenues. Conservation programs, on the other hand, do not allow an increase in energy sales, and therefore do not return any continuing revenue. This difference, it is argued, justifies a "no losers" test for conservation.

The problem with this approach is that conservation measures costing more than 3 cents/kwh, but less than marginal cost, are not financed by the current programs. Theory suggests that the rational consumer will be willing to put up the remainder of the financing themselves, since they will benefit from lower power bills. In this manner, the lost revenue effect of conservation will not be passed to non-participating consumers, but will be borne, at least in part, by those consumers obtaining the conservation measures.

Unfortunately, there are precious few "rational consumers" in the Pacific Northwest.

Residential customers who own their own homes typically have time horizons of not more than seven years, the average period of home ownership. Renters, seniors, and low income ratepayers have even shorter time horizons. Utility financial planning generally utilizes a 30 year or longer horizon, the estimated life of both conseration measures and of generating projects.

THE "NO LOSERS" CRITERIA IS NOT APPLIED TO GENERATING PROJECTS

The same "no losers" test could be applied to new generating projects. Specifically, utilities could be prohibited from financing new generating projects, needed to serve growing loads, if that financing would raise rates of "nonparticipating consumers," i.e. consumers whose own loads are not growing. Obviously, this kind of a test would totally stifle new power development, since new resource costs greatly exceed existing resource costs.

There is no sound basis for applying a "no losers" criteria to conservation resources, but not applying the same test to generating resources. Energy loads imposed by new buildings, new factories, and new stores all forces up rates for existing electricity users. Why is a "no losers" test not applied to all new development?

The discrimination against the development of conservation resources imposed by the "no losers" test is unjustifiable, is contrary to the purposes of the Northwest Power Act, and could deprive the region of needed cost-effective energy resources.

"MARKET FORCES" DO NOT OPERATE PROPERLY IN THE ENERGY MARKET

The failure of even a "perfect" market to deal energy problems, due to the difference between the individual time preference of consumers, and the much lower rate of time preference of the society collectively, demonstrates the need for utility involvement in resource allocation decisions, such as conservation financing. Welfare economics generally fails to address the difference in time preferences, resulting in suboptimal resource allocation. And, of course, the market for conservation is far from "perfect," further distorting economic efficiency.

The immediate result of the use of a "no losers" test is that ratepayers who cannot afford the increment of required financing or make the contractual commitment required by current utility programs are unable to participate fully in cost-effective conservation programs.

The elderly, the poor, and renters are thereby excluded from benefits of the programs. These groups make up about 50% of all electric ratepayers.(Pacific Northwest Residential Energy Survey, BPA, 1980)

Commercial and industrial enterprises generally demand a 2-4 year payback on their conservation investments. As a result, they are generally unwilling to put up the increment of financing needed to obtain optimal cost-effective conservation under a "no losers" test. In these sectors, both the problem of sub-marginal cost pricing of electricity, and of short time horizons, can be addressed by abandoning the "no losers" test in favor of an investment policy based on social economic efficiency.

This leaves virtually no one who will invest up to the economically efficient level in conservation. Even upper middle class homeowners will invest only that increment which will repay itself in energy savings over a seven year period, much shorter than the "payback period" of a coal or nuclear plant.

AN ALTERNATIVE--FULL MARGINAL COST UTILITY CONSERVATION FINANCING

The alternative to the "no losers" test would be for utilities, probably through BPA and the regional power plan, to provide full financing up to the marginal cost of new resources. Depending on the resources determined to be "marginal," this would range from 62 mills/kwh (completion and operation of WPPSS #3) up to 120 mills/kwh (completion and operation of WPPSS 4/5, Skagit, or Creston.)

In the event that WPPSS #3 and #1 can be displaced by conservation measures alone, as suggested in the Model Plan, then the "marginal cost" of energy may become the cost of a small hydro site, or the cost of a relatively expensive conservation measure. As the marginal price the region is willing to pay for conservation increases, the marginal cost of energy will decrease, as expensive projects fall off of the planning horizon. However, as long as funds are being spent on Creston and Skagit/Hanford, it is appropriate to treat these projects as the region's marginal alternative. If they are not viable alternatives, they should not be receiving utility support.

The costs associated with this conservation would be passed through to regional ratepayers pursuant to the conservation cost allocation policies adopted pursuant to the regional power act. These costs would be somewhat greater than those required to be recovered under the current policy. Retail utility rates would be somewhat higher. However, energy consumption would be somewhat lower.

By definition, if financing were provided only up to the marginal cost of new resources, the total cost of all resources dedicated to meeting regional loads will be lower. Therefore, the total amount of money withdrawn from the Northwest economy for electrical energy purposes, (including conservation) will be lower. The regional economy, overall, will be stronger. Pressure on financial markets will be lower, and therefore the cost of borrowing for all Northwest entities (consumers, businesses, state and local government, etc.) will be lower.

The substitution of relatively labor-intensive, locally based conservation, for relatively capital and resource intensive generation, would increase regional employment, at a small loss in extra-regional employment. (See, Model Plan, Northwest Conservation Act Coalition) The dependability of conservation resources, compared with the sometimes unpredictable performance of generating plants, would enhance regional energy reliability. The geographical diversity of conservation would reduce exposure to war or sabotage.

VIRTUALLY ALL RATEPAYERS WOULD BE BETTER OFF WITH FULL CONSERVATION FINANCING

The only ratepayers who would be arguably worse off if the cost-effectiveness criteria for utility loans were raised to marginal cost are those ratepayers who choose not to participate in conservation investments, against their own best interest, and the few consumers who simply can make no additional conservation investments. This number is relatively small. All other ratepayers would benefit from the additional conservation through reductions in regional power costs, in their own electric bills, and in the indirect form of a stronger regional economy.

This approach would facilitate a high participation rate in conservation programs, particularly by low income ratepayers, seniors, and renters, who collectively make up almost half of the housing market. The value of this to the region must be evaluated.

These ratepayers, are presently bearing a portion of regional conservation costs, but receiving a disproportionately small share of the benefits. This is because they are precluded from participating in current programs, by the inability to make long term commitments, or obtain incremental financing. Commercial and industrial customers, who are precluded from almost all current programs, can make the same claim.

Middle class homeowners, who can sign liens on their homes, invest supplemental capital of their own, and make a relatively long-term commitment, are the primary beneficiaries of the current programs, although their participation is suboptimal, due to the constraint of average cost pricing of energy, and short time horizons.

The adverse equity considerations affecting the relatively small number (less than 2.5%) of ratepayers who are already "fully conserving" (PNW Residential Energy Survey) must be weighed against the positive equity considerations of expanding availability of conservation financing to low income, senior, and renter ratepayers. In addition, the Northwest Power Planning Council must consider the economic efficiency aspects of providing financing to all ratepayers for measures which are cost-effective compared with new resources.

To date, utilities have shown no interest in this type of research. The Northwest Power Planning Council must address these issues as soon as possible, in order to insure that the conservation benefits of the Northwest Power Act are made available to all Northwest ratepayers.

The potential for billions of dollars worth of efficiency improvements through providing adequate conservation incentives must not be compromised to save a few million (or even a few hundred million) dollars worth of equity.

The economy of the region simply cannot tolerate continuing inefficiency. Energy costs (usage multiplied by rate plus private and utility conservation costs) will be lowest if all cost-effective measures are employed. Even nonparticipants benefit when the region's economy in strengthened.

Low income ratepayers will benefit greatly from a shift in policy. Studies have shown that low income ratepayers have the lowest price elasticity of any ratepayer group (Pacific Gas and Electric, Status of Residential Elasticity Studies, 1980), even though they have the lowest level of insulation (Pacific Northwest Residential Energy Survey, BPA, 1980; New York State Insulation Survey, Cornell University, 1979).

The obvious conclusion of these studies is that low income ratepayers do not have the discretionary income to invest in conservation measures. This suggests that rising rates will not induce conservation among the poor, but will only lead to further deterioration of their already depressed standard of living.

The region, all ratepayers, and the capital markets all suffer as a result, as more expensive generation is built to serve them, when lower cost conservation could be employed instead.

THE FAILURE TO CHANGE POLICIES NOW MAY
FOREVER PRECLUDE COST-EFFECTIVE OPTIONS

A number of conservation programs which are cost-effective may be precluded if full financing is not provided. An example of this is the retrofit of ceiling insulation to R-49. According to the Model Plan (Northwest Conservation Act Coalition, 1982), the incremental cost of retrofitting from R-38 to R-49 when insulating a dwelling is 42-48 mills/kwh saved, lower than any responsible estimate of marginal cost.

BPA's current program only provides financing for R-38 ceiling insulation; R-49 financing is not generally provided by utilities participating in the BPA programs. Once R-38 is installed, however, it may not be cost-effective under any measure of cost-effectiveness to return to the dwelling to add the increment. By eliminating the no-losers test now, and raising the conservation financing level to marginal cost, this potential can be realized, and the regional economy and millions of ratepayers can benefit.

Other potential measures which are not now being adequately pursued include triple glazing, hot water pipe insulation, caulking and weatherstripping, wall insulation beyond R-11, and floor insulation beyond R-19. In the commercial and industrial sectors, many additional measures could be pursued, particularly considering the short payback periods generally demanded in those sectors, contrasted with the long accounting life of generating projects.

HOW MUCH ENERGY COULD BE SAVED IF THE NO-LOSERS TEST WERE DROPPED?

The potential for energy savings is dramatic. In the Model Plan, residential weatherization accounts for over 15 billion kwh/year of savings. Half of this potential is in the homes of renters, seniors, and low income people. Therefore, only about half of the potential can be reached with current programs which require mortgage liens, provide only partial financing, or require repayment commitments from participants. Those savings, about 900 average MW, exceeds the dependable output of WPPSS #3.

In addition, about 4 billion kwh/year of the residential conservation potential identified in the model plan is "high cost" conservation--over 30 mills/kwh. Within the 50% of housing which can be reached with current program (middle income homeowners), about 2 billion kwh/year in "high cost" conservation will be foregone unless the current BPA conservation financing threshold is abandoned in favor of a marginal cost threshold. Thus, a total of about 1200 average megawatts of conservation will probably not be realized due to the institutional constraints imposed by current application of the "no losers" test.

The economic loss to the region is easy to calculate. The difference between the average cost of completion of WPPSS #3 (62 mills) and the average cost of these program (25 mills) is 37 mills. 9.5 billion kwh/year in foregone savings at 55 mills/kwh yields about $350 million per year in regional costs. If compared with the cost of new resources (120 mills) the savings would amount to about $1.2 billion per year.

CALCULATION OF MARGINAL COSTS

CAPITAL COSTS

The 70% WPPSS-owned portion of WPPSS #3 is $1.5 billion in direct construction costs from completion (Latest WPPSS Bond Statement); In addition, BPA rates will cover the cost of money during the intervening construction period. Assuming an average cost of capital of 14%, this would add about $600 million to this cost, for a total of $2.1 billion. Amortized over 20 years, (the longest recorded life of a nuclear plant), at an incremental cost of capital of 14%, yields an annual capital cost of $198.7 million; extending project life to 30 years reduces this to $187.9 million.

The total capacity of WPPSS #3 is 1240 MW. 70% of this is 868 MW. Operating at a 55% annual capacity factor (the historical performance of large pressurized water reactors as required by the Northwest Power Act) yields annual output of 4.2 billion kwh.

OPERATION AND MAINTENANCE COSTS

The estimated operation and maintenance costs for WPPSS #3 (70%) are detailed in the most recent WPPSS Bond Statement. For the first year of full operation, these are expected to be $167 million. This includes fuel, O&M, decommissioning, and taxes. No explicit allowance is made for waste disposal as required by the Northwest Power Act.

ESTIMATED POWER COSTS

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ANNUAL CAPITAL COST:      $198.7 MILLION
ANNUAL O&M COST:           166.7 MILLION
INCREMENTAL ANNUAL COST:   365.4 MILLION
ANNUAL OUTPUT:               4.2 BILLION KWH

INCREMENTAL POWER COST
TO COMPLETE WPPSS #3:      87 MILLS/KWH

ADD: LOSSES @ 10%          95 MILLS/KWH
ADD: CONSERVATION CREDIT
     @ 10%                 105 MILLS/KWH

DISCOUNT TO 1982 $ @ 8%    62 MILLS/KWH
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Pacific Power and Light has estimated the fully distributed cost of power from #3 at 191 mills/kwh, in a December, 1981 transmittal to the Oregon PUC. Discounted from 1987 $ to 1982 $, this equals 130 mills/kwh; this is assumed to be approximately equal to the fully distributed cost of Skagit/Hanford or Creston, typical "new resources" for the purposes of calculating the value to the region of conservation savings, since the Regional Power Act effectively precludes financing of additional resources with tax-exempt debt (Sec. 9(f)).