Pancaked Rates: An Issue of Equity, Not Efficiency[1]

The term "pancaked rates" refers to the payment of multiple embedded-cost transmission rates for a single transaction across multiple transmission systems. Some parties argue that pancaked rates create "distortions" in, or "significant impacts" on, resource choices and limit the extent of the market. The existence of economic distortions or inefficiencies affecting society as a whole (i.e., the total cost of producing and transmitting power) is an empirical question, different for each major transmission area, and dependent on market prices, the levels of wheeling rates, the incremental costs of resources in operation and the prevalence of fixed-price transmission contracts in those areas.

For example, a resource with an incremental cost of $5/MWh selling into a $30 market could be forced to pay up to $25 in pancaked transmission rates before the transaction became unprofitable. On the other hand, a resource with an incremental cost of $25 could pay up to $5 in pancaked rates before the transmission charges affected market behavior. The example shows that a blanket statement about the destructive impacts of pancaked rates is inappropriate. Pacific Northwest resources are closer to the first example than the second.

Though in many cases there may be no overall impacts in a social- and economic-welfare sense, removal of pancaked rates will almost always have equity impacts—benefiting one rate payer (or group of rate payers) at the expense of another. In the first example above, the resource owner would enjoy a $25 profit if there were no transmission charges, but would share the profits with (multiple) transmission owners if there were.

For the WECC and the RTO West service areas, rate pancaking is almost exclusively and entirely an issue of economic equity (i.e., the distribution of economic rents between buyers and sellers) rather than an issue of economic efficiency . As a result, any proposal to eliminate rate pancaking will simply cause cost shifts without reducing the overall cost of producing and delivering electricity to consumers.

The issue of the impacts of rate pancaking can be divided into impacts on the dispatch of current resources and the impact on new-resource choices. In addition, rate pancaking can be examined from the perspective of loads. This note contends that in all cases, the presence of pancaked rates in the WECC (and particularly the NWPP) area is an equity issue.

Rate pancaking does not interfere with economic dispatch of existing resources in the WECC

Studies have been conducted over the last several years that show that the actual cost of generation in the WECC, and in the Northwest in particular, is extremely close to the cost of generation that would occur if transmission rates were eliminated, or replaced

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by a single rate. First, the IndeGO "benefits analysis" (May 1998[2]) showed an annual average reduction in operating costs for the entire WSCC of only $13 million per year (2001-2015 levelized), due to the elimination of wheeling charges within the IndeGO area (and apparently within other areas of the WECC as well), but assuming an export fee between the Northwest and other parts of the Western Interconnection.[3] This $13 million must be compared with the billions in annual costs paid by power consumers throughout the WECC.

Second, the cost-benefit study conducted by Tabors Caramanis and Associates (TCA) for RTO West showed the possibility of about $250 million in generation savings throughout the WECC due to the formation RTO West, which was assumed to eliminate the impact of transmission rates on locational marginal prices (LMPs) within RTO West.[4] [For the RTO West area, including British Columbia, there was an increase in generation costs.] To the extent that generation owners and customers pay for their transmission service as a long-term fixed cost, this is a significant overstatement of the potential efficiency gains from the elimination of pancaked rates. That is, the offer of power into a market is, at the margin, unaffected by the "sunk" costs of long-term transmission contracts. Almost all of the power ultimately delivered to consumers, including distant-generation power such as Colstrip, is in this category. Even if we assume for the purpose of this note that the entire generation savings estimated by TCA can be ascribed to such a change in rate design, this $250 million must be compared with the total cost of generation in the WECC to put it into perspective. The total cost of generation in the WECC is on the order of $26 billion (assuming 860,000 GWH at $30/MWH).[5] Thus, even on the assumption that the elimination of pancaking would save $250 million annually, this represents only one percent of the total cost of generation in the WECC.[6]

Rate pancaking does divide the potential gains from trade between buyers and sellers

In any transaction, the buyer and seller must decide who bears the cost of transportation (among other things). Energy purchased from distant locations currently faces pancaked rates, either short-term or long-term, and buyers and sellers must allocate these costs between them. However, this is no different from many types of transactions that involve transportation. (For example, concrete plants tend to be distributed all over the country because of the cost of transportation relative to the market value of the delivered product.) As a result, it is appropriate for power supplies from farther away to cost more. There is a legitimate question whether the current pricing system appropriately reflects the marginal cost of transmission, but it is not the case that simply eliminating pancaked rates will automatically yield the economically efficient result, unless a new system of locational congestion prices is imposed simultaneously. Given

[2] Using PMDAM, an economic dispatch model that minimizes the short-term and long-term cost of serving load.
[3] Elimination of the export fee reversed this finding for the WSCC, showing that production costs would increase.
[4] See Table 4 in the final revised study by TCA, March 2002.
[5] See Table 5 in the final revised TCA study for the GWH.
[6] It is not possible from the TCA analysis to determine the reduction of generation costs that would result from an elimination of pancaked rates only in the Northwest.

the complexities and risks associated with such pricing systems, and the risk of cost shifts and breakdowns in related energy markets, compared with the minute potential for gains in overall efficiency, the elimination of pancaked rates would not be prudent.

Elimination of rate pancaking would cause cost shifts

Based on data collected in the RTO West Phase 2 effort, BPA customers pay an average rate of about was $18.58/kW-year in 2000 (BPA's "pre-RTO" average transmission cost or Rate for Company Load). The average Rate for Company Load of all the Filing Utilities was $24.72 (calculated with the same data and methodology). If the elimination of pancaking is accomplished by simply averaging all the embedded cost rates of the Filing Utilities, there would be an increase in BPA's average embedded cost of wheeling by about one third. This would represent a shift in costs from the customers of regional IOUs, and from Canadian ratepayers, to the customers of BPA of about $80 million annually.

Another way of looking at the problem is to ask what the impact would be if BPA were to eliminate its short-term wheeling rates. According to the same RTO West Phase 2 data, BPA relies on about $60 million in short-term wheeling revenues to help reduce the rates it charges to long-term customers. If BPA were to lose these short-term revenues, which are paid by others for the use of BPA's system, there would be a cost shift of about $60 million per year from others to BPA customers.

Long-term decisions should reflect the cost of transmission

Pancaked rates affect long-term resource decisions as well. From the point of view of societal economic efficiency, the cost of new resource alternatives needs to include the cost of either 1) fuel transportation or 2) electricity transmission. To the extent that, for example, a developer of a combustion turbine does not face the incremental cost of the natural gas pipeline to supply fuel for the generation, or the developer of a coal plant does not face the incremental cost of transmission necessary to bring the power to market, there may be an economically inefficient result. The combustion turbine developer must see the gas transportation costs of the siting decision; similarly, the coal plant developer at a site distant from load centers must face the cost of new transmission. This puts both types of generation on an equal footing with respect to transportation costs (gas inputs in one case; power output in the other).

New resources that are more distant from load centers generally face the cost of upgrading the transmission system to accommodate the additional generation, because existing long-line transmission tends to be sized to the generation plants for which the capacity was built. For example, the lines west from the Colstrip plant were sized to move the power from that resource. A new resource intending to use the Colstrip line would need either to buy down the rights of other Colstrip owners or build new capacity to move the new generation. Similarly, new resources located near load centers face the potential cost of upgrading gas pipeline capacity.

For distant electric resources, multiple transmission costs or rates, if incurred, are paid by either the buyer or the seller. However, there is no evidence that the payment of these rates forces a reduction in the overall economic efficiency of the power system. In fact, if gas pipeline expansion is paid by resource developers, economic efficiency requires that the developer of a new electric resource should also pay the full incremental cost of necessary transmission.

Supplies from longer distances are more likely to involve costly network upgrades, which contribute to the incremental costs of the transaction. Some observers believe that the Northwest is being driven to a pipeline-expansion model to support new gas-fired CTs placed close to load, and would prefer a transmission-expansion model to support new wind- and coal-fired plants far from load. Economic efficiency suggests that the region's transmission providers should not be making the choice between these alternative <u>generation</u> models by allowing the shipment of power that does not collect full expansion costs. Rather, transmission providers should make available the information necessary for those entities who are developing and purchasing from these incremental resources to make their own market-based decisions. Some buyers will want coal- and wind-fired resources, but they should not be shielded by others from the incremental transmission costs of such purchases, any more than those buyers seeking gas-fired resources should be shielded by others from the costs and risks of relying on distant gas supplies delivered by pipelines. Both resource choices involve distant supplies of some component of the delivered product, and both face different risks in the transportation of the product to load. Regional policy should not attempt to determine that one type of cost and risk should be socialized (through the elimination of pancaked transmission rates) while the other should not (through the socialization of incremental pipeline costs).

<u>Rate Pancaking from the Load Side</u>

Thus far this note has addressed the pancaking issue from the generation side. From the load side—that is, with respect to access to market hubs from loads—the issues are similar. Rate pancaking does not materially affect the economic efficiency of the system; it does not affect the final prices of power at market hubs. However, those utilities and end users that seek access to markets may be faced with multiple charges to purchase power at market hubs. It would be possible to eliminate these multiple charges for these purchasers. However, just as with the generation owners, elimination of pancaked rates would simply transfer cost responsibility from those individual purchasers to the transmission rate payers as a whole.

Though the problem appears to be pancaked rates, the real problem may be poor rate design. In general, the charges paid by end users and utilities for access to market hubs are the costs of access to the full transmission of system of <u>each</u> intervening transmission provider. However, the use of some of the intervening providers' systems may be confined to a small pocket. For example, a small utility in Idaho might be forced to pay the full cost $24 per kw-year of PacifiCorp's system, even though it only needs to use a small stretch of PacifiCorp's system and does not use facilities in, say, Portland, which are included in setting that $24 rate. Thus, the Idaho utility (or end-user) may be forced to pay for full access to the PacifiCorp, Idaho and BPA systems in order to obtain power at a Mid-C market hub, when the Idaho customer does not in fact use or require full access to all three systems. However, the solution to this problem is not necessarily the elimination of pancaked rates, when a change in rate design such as segmentation may correct the problem.

Conclusions

The elimination of pancaked transmission rates would not improve the economic efficiency of the power system, measured by the cost of generation, in the WECC area. Rather, the elimination of pancaked rates would create unacceptable cost shifts among regional (and perhaps extra-regional) consumers. Because of pancaked rates, some purchasers may face higher costs than others. However, this is no different from many other parts of the economy, where transportation costs are normally reflected in the delivered price.