

1 solid waste issues and regional practice in energy issues. I have
2 been a Vice President of SRC for the past year.

3 3. I have been involved in rate design and rate studies
4 including rate designs for solid waste services across North America
5 since 1985. I have performed solid waste rate design and incentive
6 feasibility studies for jurisdictions including Victoria, B.C.,
7 Cincinnati, Ohio, Oak Park, Illinois, Anchorage, Alaska, Fort Wayne,
8 Indiana, Ventura, California, and Pasadena, California. I have
9 performed detailed rate studies and implementation for Pasadena,
10 Cincinnati, and Oak Park.

11 4. I performed detailed rate studies and implementation for
12 the City of Seattle. I pioneered the concept of "garbage by the
13 pound" and obtained grant funding from the Environmental Protection
14 Agency (EPA), Region 10, to design and implement a garbage by the
15 pound study for the City of Seattle. The study, which included a
16 test involving Seattle Solid Waste Utility customers, was designed
17 to determine the impact of garbage by the pound rate design on
18 levels of waste reduction and recycling.

19 5. I have given single and multi-day workshops, presentations
20 and training on the effect of rate incentives on waste reduction and
21 recycling for the Washington Utilities and Transportation Commis-
22 sion, the Greater Vancouver, B.C. Regional District, the British
23 Columbia Ministry of the Environment, the California Five Cities
24 Council, and EPA national headquarters.

1 6. I have drafted manuals on the effect of rate incentives on
2 waste reduction and recycling and implementation of such incentives
3 for EPA national headquarters, EPA Region 10, and the States of
4 California and Illinois.

5 7. I am familiar with Washington Utilities and Transportation
6 Commission (WUTC) Docket TG-931585, in which Seattle Disposal Co.,
7 Rabanco Ltd., d/b/a Eastside Disposal and Container Hauling
8 (Eastside) filed for increased residential garbage and residential
9 recycle rates. I have reviewed the tariff revision adopted by the
10 WUTC.

11 8. I have conducted detailed studies of the reaction of
12 residential customers to incentive-based (either volume- or weight-
13 based) rates. Generally, I have found that there are several
14 reactions to variable rates: garbage tonnage reductions; increases
15 in recycling and yard waste diversion; and reductions in garbage set
16 outs. These results are consistent with reinforcing the waste
17 management hierarchy. The results from other communities shows that
18 incentive rates, in conjunction with diversion programs, have led to
19 reports of between 25% and 65% reduction in the amount of tonnage
20 going to landfills or transfer station (with an average of 44%).
21 Customer surveys show that incentive rates lead to waste reduction
22 and careful purchasing on the part of customers. One survey shows
23 that 76% of customers reported more careful decisions in purchasing
24 to minimize waste, and 25% reported using additional efforts to

1 reduce garbage. This is the first rung on the waste management
2 hierarchy. Preliminary statistical work I have conducted shows that
3 incentive rates are a crucial link to recycling. Extensive evidence
4 shows that incentive rates lead to greater recycling, but even with
5 mandatory recycling and mandatory yard waste programs, volume-based
6 incentive rates lead to an additional 8-13% percentage points of
7 diversion and recycling. In addition, garbage set outs from
8 communities decline dramatically. Reports from Hoffman Estates,
9 Illinois showed a decline from an average 3.1 units set out (1.86
10 33-gallon equivalents) to 1.3 stickered bags (a 30% reduction).

11 9. I have also published detailed work examining the reaction
12 of City of Seattle customers, and found that they reduced their
13 subscribed garbage cans from an average of 3.5 per household per
14 week to less than 1.7 cans per week in reaction to the implementa-
15 tion of variable can charges. The first reduction, to about 2.6
16 cans, came about in response to medium-incentive rate differentials,
17 where differentials for extra cans were about \$3. However, when
18 rates increased, and in particular, when the rate for the extra can
19 increased to \$5 in 1987, customers reduced their subscriptions to
20 about 1.5 cans (a much larger percentage reduction). In addition,
21 the City's recycling rate increased from about 14% to over 26%
22 during this period. Finally, in 1989, when more aggressive rate
23 incentives were implemented (the rate for additional cans increased
24 to \$9), and the City introduced yard waste collection and expanded
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1 the recycling program, customer subscriptions fell to 1.0 cans per
2 household per week. Almost 90% of Seattle's customers subscribe to
3 the mini-can or one can service levels, and the mini-can made sense
4 for almost a quarter of Seattle's customers. And when even better
5 incentives were offered through the pilot test of "Garbage by the
6 Pound," we found an additional 15% reduction in the number of pounds
7 of garbage put out for collection. See Attachment 1.

8 10. Customers change behavior to minimize their *bills*.
9 Customers in Seattle reacted to new rates proposals in a manner that
10 showed they were rational. When rates for extra cans increased,
11 they selected a mix of services (garbage, yard waste, and recycling)
12 that reduced the impact of the rate increases on their bills.
13 Customers make selections among the waste management options and
14 change their behavior to the extent that the impact on their bill is
15 reduced up to the point that the effort is worth it. And they make
16 sensible choices. When the yard waste program was introduced in
17 Seattle *with \$2 per month charge* it was feared that customers might
18 not subscribe. However, the evidence clearly shows that customers
19 can make rational economic decisions. Customers reduced their extra
20 garbage can subscriptions (saving \$9) and signed up for the yard
21 waste collection. In doing this, customers reduced their bills by
22 \$7 over what they would have been, and Seattle's yard waste program
23 had over 62% participation and considerably more yard waste than
24 anticipated was diverted. Seattle's recycling and diversion rate
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1 jumped to almost 39%. Recycling and yard waste participation were
2 increased significantly because customers could reduce their bill by
3 participating.

4 11. There are several important lessons from this evidence.
5 Customers react to rates, and greater differentials or greater
6 incentives are important to generating this behavior. Second,
7 incentive rates are one of the best methods of causing *and maintain-*
8 *ing* customer behavior that is consistent with the waste management
9 hierarchy. Rates are monthly reminders to customers to make
10 appropriate waste management decisions, and evidence shows that the
11 pocketbook is an excellent mechanism to affect behavior.

12 12. However, there are thresholds. Customers reacted slug-
13 gishly to \$1.50 and \$3 differentials. They reacted more dramatical-
14 ly to \$5 and \$9 differentials. Rate incentives must give clear
15 economic signals that are consistent with the hierarchy and are
16 clearly understandable to customers. Then customers will change
17 waste management behavior consistent with the signals provided.

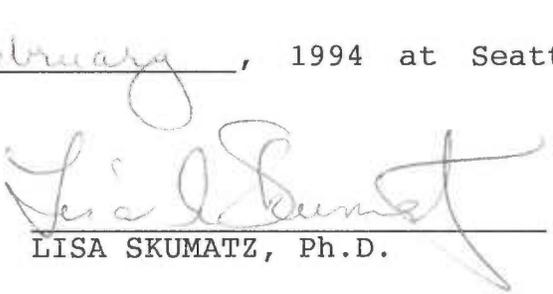
18 13. In addition, differentials between garbage rates and
19 diversion need to be high to provide incentives for separating the
20 waste. The high yard waste participation resulted from the
21 relatively large dollar savings customers could realize from
22 modifying behavior and separating yard waste.

23 14. Bills are important, and customers will change behavior to
24 reduce bills. The rates that are proposed in this filing do not
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1 provide an incentive to reduce the amount of garbage set out. In
2 fact, they create an active disincentive for low levels of garbage.
3 Customers who produce low levels of garbage through careful buying,
4 recycling, and yard waste separation will pay higher bills than
5 those who simply throw all their garbage in the trash. This is an
6 incentive that is specifically contrary to the waste management
7 hierarchy and goals stated in legislation and in area comprehensive
8 plans. Based on my experience, I would anticipate that the rates
9 would have a detrimental impact and would lead to a loss of momentum
10 in the progress toward reaching the solid waste management goals in
11 the County.

12
13 I DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE
14 OF WASHINGTON AND THE UNITED STATES OF AMERICA THAT THE FOREGOING IS
15 TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

16 DATED this 18 day of February, 1994 at Seattle,
17 Washington.

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LISA SKUMATZ, Ph.D.

DECLARATION OF LISA SKUMATZ, Ph. D., IN
SUPPORT OF KING COUNTY'S
PETITION FOR RECONSIDERATION - 7
WUTC2.DEC

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