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Deliberative Polling and Policy Outcomes: Electric Utility Issues in Texas*

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Abstract

Deliberative Polling brings a previously interviewed random sample together for a weekend of discussions with other participants and policy experts. At the end, they complete the same questionnaire as before. This idea is to see what public opinion would be like if the public were better informed about and had devoted more thought to the issues. This paper presents the results of eight regional Deliberative Polls about electric utility issues. As in the other Deliberative Polls to date, the participants seem to have learned quite a lot, and their better informed opinions at the end were often markedly different from their more "top-of-the-head" responses at the beginning.

Modern democracy revolves around public input. Referenda excepted, the public does not decide policy questions directly, but it does select and guide those who do. On most issues, however, the guidance is both quantitatively and qualitatively weak. Polls may ask about policy preferences, but the responses to such questions are rife with non- and minimal attitudes (Converse 1964, 1970; Kinder and Sears 1985; Luskin 1987). What the distribution of preferences would be if most people actually knew or thought much about the issues is unknown.[1]

The Deliberative Poll is intended to provide a means of gauging such better informed public preferences. A random sample is recruited to a deliberative weekend at a single site, sent carefully balanced briefing materials beforehand, and then questioned afterward (as well as beforehand). The basic idea has long roots, going back to the citizen-juries of the ancient Greek city-states (Fishkin 1991), which were selected by lot (simple random sampling) and debated the issues before making decisions affecting the whole community. We have now conducted fifteen Deliberative Polls: seven national ones (five in Britain, one in the U.S., and one in Australia) in addition to the eight regional ones on which we report here.

How different might we expect the distribution of better informed policy preferences revealed by a Deliberative Poll to be? Not very, according to one prominent but contested stream of literature, arguing either that ill-informed individuals use cognitive shortcuts or "heuristics" to reach the same preferences as they would hold if they were well-informed (Popkin 1991, Lupia and McCubbins 1998) or that individual-level departures from well-informed preferences cancel out in the aggregate (Page and Shapiro xxxx). Against this view, Bartels (1996), Delli Carpini and Keeter (1996), Luskin and Globetti (1997), and Althaus (1998) provide survey-based evidence that information does matter. But Deliberative Polling data, almost uniquely, provide a quasi-experimental angle on the same question. We get our participants to learn and think more about the issues, then see what happens to their policy views.

Deliberative Polling and Public Utility Issues

As regulated monopolies, all electric utility companies in the state of Texas must periodically submit an Integrated Resource Plan (IRP) for meeting the service territory's current and future electricity needs. As part of this process, they were required by the Public Utility Commission (PUC) to take customer preferences into account. But meaningful preferences have been hard to uncover, because most people do not have well developed attitudes about these issues. One of the centerpieces of Converse's (1964, 1970) seminal analysis of "non-attitudes" was a question asking whether "the government should leave things like electric power and housing for private businessmen to handle." At least in ways, electric utility issues are an ideal topic for Deliberative Polling, precisely because the public knows even less about them than about most other important policy issues.

Before Deliberative Polling, utility companies tried using focus groups and town-hall-like meetings. But standard focus groups provide very limited opportunity for learning, so the opinions harvested were still not very well informed. Nor, for that matter, were they reliably

representative, since focus groups are small, nonrandom samples. The opinions at town-hall-like meetings were very well informed, because the meetings were attended chiefly by people representing special interests with a lot at stake, but for the same reason were wildly unrepresentative of the public at large. Deliberative Polls, in contrast, involve much more information (and better representation) than focus groups and vastly better representation than town-hall-ish meetings.

To date, eight utility companies with service territories wholly or partly in Texas have held Deliberative Polls. The first of this series was hosted by Central Power and Light (CPL) in Corpus Christi between May 31 and June 2, 1996, and the most recent by Texas Utilities (TU) in Dallas between October 16 and 17, 1998. In-between, at more-or-less equal intervals, were Polls held by West Texas Utilities (WTU) in Abilene; Southwestern Electric Power Company (SWEPCO) in Shreveport, Louisiana; El Paso Electric (EPE) in El Paso; Houston Light and Power (HLP) in Houston, Entergy in Beaumont; and Southwestern Public Service Company (SPS) in Amarillo.[2] (We list them in chronological order.)[3]

In each case, the basic design was the same. A random sample of roughly 800-1,500 was interviewed by telephone and invited at the end of the interview to attend the deliberative weekend. They were offered incentives of $50 for agreeing to attend and an additional $100-150 for actually attending and completing the post-deliberation questionnaire.[4] Participants living far enough away were provided with transportation; the rest were simply told when and where to assemble. On site, they were fed and lodged in hotels. The official deliberations (as distinct from after-hours spillovers) were held either in a hotel or on a university campus.

The participants were sent briefing materials presenting all the major arguments for and against the major alternatives facing the company and were encouraged to study them beforehand. The briefing materials were assembled by committees representing a broad spectrum of stakeholder groups, including consumers, environmentalists, shareholders, the oil industry, and large industrial users. In every case the committee produced a document that all its members could agree was fair and balanced.

Each deliberative weekend began with some opening ceremonies, a preview of how the event would work, and a video reminding the participants of the issues and arguments covered in the briefing materials. The participants were divided randomly into small groups of 12-20, each led by a trained moderator. The proceedings alternated between small group discussions and plenary sessions, where the participants could put questions developed in the small groups to panels of experts of varying interests and perspectives. At the end, the participants were administered the same questionnaire as in the pre-deliberation telephone survey (plus some additional questions about their experience of the event).[5]

The questionnaires varied somewhat from Poll to Poll. Those from the first three Polls by CPL, WTU, and SWEPCO were highly similar, while those from the remaining five were less similar to both the first three and one another. In varying degrees and versions, then, the questionnaires included items concerning *sociodemographic characteristics*, factual *information* relevant to utility issues, *goals* or *values* utility policies might be expected expect to serve

(protecting the environment, ensuring a reliable energy supply, etc.), *empirical premises* (such as whether competition among utilities would lower electric rates), *policy attitudes* (toward proposals like building new fossil fuel plants or establishing green pricing), *evaluations of the company's performance*, *willingness to take part* in specific optional programs like the installation of "smart meters" charging different rates at different times of day, and *willingness to pay* for specific policies, as in green pricing.[6]

Toward the end of this paper, we shall concentrate on the data from the CPL, WTU, and SWEPCO Polls, for several reasons. First, the information questions are distinctly more numerous there than in the other utility Polls. Second, the policy items in the remaining five Polls are less similar to one another and to the first three's than the first three's are to each other, which allows for more straightforward comparisons of results.

Representativeness

One of the great advantages of Deliberative Polling over other deliberative forms like Citizen's Juries (xxxx), Consensus Conferences (xxxx), and Planning Cells (xxxx) lies in probability sampling, which is the only way of having any statistically warranted confidence that the sample adequately represents the whole population. Of course, the larger the sample, and the greater the response rate, the greater the confidence. The role of sample size needs no elaboration, although we should mention that ours, in these eight events were around (usually above) 200. The response rate, however, is worth saying a bit more about. At the back of our minds we all know (but usually try to forget) that the response rate constitutes a variably large qualification to any claim of probability sampling. True probability samples of human beings do not exist. To greater or lesser degree, what begins as a probability sample is inevitably corrupted by the failure of everyone selected to participate, and the Deliberative Poll, whose respondents must agree twice—first to be interviewed and then to attend the deliberations—faces an aggravated risk of this sort.

In this vein, it is useful to distinguish the *initial response rate* (the proportion of designated respondents who are interviewed), the *participation rate* (the proportion of the interviewees who attend the deliberations), and the *overall response* (the product of the two). Our other Deliberative Polls—all at the national level, starting with face-to-face rather than telephone interviews (based on area sampling), and about much sexier issues—have had initial response rates in roughly the 62 to 75% range, participation rates in roughly the 25 to 52% range (but mostly in the thirties), and overall response rates in roughly the 20 to 35% range (see Luskin and Fishkin 1998). We may add that these overall response overlap the range of response rates for the best commercial polls (Brady and Orren 1992).

The story in these electric utility Polls is a bit more worrisome. Table 1 gives the figures for the whole series. The initial response rates run from 39% to 48%, toward the high end of the range as those achieved by the best commercial polling organizations (Brady and Orren 1992), although lower than those we have attained (with face-to-face interviews) in the other Deliberative Polls. In every Poll in this series, however, fewer than one-fourth of those initially interviewed attended the deliberations. Spending a weekend discussing anything is uninteresting

or simply impossible for some, and spending a weekend discussing electric utility issues in particular is not everybody's idea of fun.[7] The same lack of interest that makes electric utility issues so initially nonattitudinal and thus so ripe a subject for deliberation also makes people less interested in deliberating them. Thus the overall response rates for this electric utility series thus hover just under 10%.

This is cause for concern, but the most important question, if we accept the interview samples as good standard RDD samples, is how far the participants constitute a random subsample. Thus Table 2 exhibits the proportions of items showing statistically significant differences between participants and "nonparticipants" (meaning the interviewees who did not participate). Across all these studies, only 16% of the items show a statistically significant difference between participants and non-participants at the .05 level. Within some categories, to be sure, this percentage was substantially higher. There were statistically significant differences on 29% of the information items, 27% of the company evaluation items, and fully 81% of the willingness-to-take-part items. Fortunately, these latter, included at the companies' instance by way of market research, are the least interesting of the dependent-variable items. In other categories, moreover, the percentage is much lower. There were statistically significant differences on only 17% of the sociodemographic items, 15% of the items concerning empirical premises, 7% of the willingness-to pay items, and only 6% of the actual policy attitude items.

The significant differences run in largely expectable directions. The participants tended to slightly older, slightly more educated, but slightly poorer than the nonparticipants. They also tended to more concerned and less satisfied with the company's services (they may have viewed the Deliberative Poll as a forum to vent their concerns), to know more about electric utility issues, and already to be taking an active role in home energy decisions. Substantively, however, these differences are quite small. For example, the average participant's age was 45.6, compared to 47.8 for the average nonparticipant.

Information Gains

Table 3, displaying the proportions of items in various categories that showed statistically significant changes from pre- to post-deliberation measurement, shows fully 82% of the information items showed statistically significant changes, a higher percentage than for any other type of item. Table 4 provides more detail. Here it can be seen that three of the five "statistically insignificant" information gains are in fact statistically significant by a one-tailed test, which is more appropriate for these items, given our expectation that that participants may gain but should not lose information. Counterbalancing that, it must also be noted that three items ("which customer group consumes most" in both the HLP and SWEPCO data and "what proportion of the electric bill pays for fuel" in the CPL data) do in fact show a significant information decline. So the percentage of information items showing statistically significant gains remains at 82% (23 of 28 items). The five exceptions are clearly strays, as all eight summary information indices, consisting of the mean proportion of information items answered correctly given Polls, show sizable and statistically significant increases. Across the eight Polls the mean information gain averages 22%, ranging from 13% for EPE to 37% for TU.

Yet even these figures must understate the true information gains. The reason lies in the combination of ceiling effects in the measurement of information and the usual rich-get-richer pattern in learning of any kind (xxxx). Those scoring highest on information at time 1 are aptest to learn most but cannot, operationally, show much increase. We see only the learning by the initially ill- to moderately-informed, not by the initially well-informed, whose learning is almost certainly greatest (in absolute as distinct from proportional terms).

Changes in Policy Attitudes

The questions from the first three Polls can be sorted under eleven headings, each to do with an important element of electric utility issues: building fossil fuel plants; importing power from outside the service territory; competition and deregulation; economic growth; economic well-being; improving the efficiency of electricity usage; minimizing environmental impacts; meeting the basic needs of all citizens, including the poor; minimizing rates; mixing energy sources; and increasing the use of renewable resources. Confirmatory factor analyses verified that all the items under a given heading tap the same underlying dimension.

Correspondingly, we have created 11 summary policy indices by rescaling each item to the [0,1] interval, reflecting it as necessary to ensure that all the items in a given index point the same way, and taking the mean under each heading. The pre- to post-deliberation changes in these indices and the items in them are described in Table 5. Consistent with our results in other Deliberative Polls, a majority of items across the three Polls, in this case 70 of 127, or roughly 65%, showed statistically significant change. Of the 32 summary indices (3 times 11, minus 1 for the one set of questions that was not asked at one site), all but five show statistically significant change, and two of the five exceptions come close (achieving significance beyond the .10 level).

What were some of these changes, then? Participants saw the merits of meeting future need for electricity by building fossil fuel plants, importing power, and increasing efficiency. Post-deliberation, participants attached less importance to effects for economic well-being, even as they continued to attach about the same importance to promoting economic growth. They also attached more importance to pricing electricity so that low-income customers can meet their basic needs.

Another striking change was in the extra dollars participants said they would be willing to spend to achieve particular ends, like increased use of wind or solar power. Across the eight Polls, the percentage of those willing to pay something extra for this purpose increased from 52 to 84%, even though many of the people in these percentages were not volunteering to pay very much. Then, again, not that much per person would actually be necessary to finance some notable changes of policy. So our surmise is that many of the participants learned that many of the benefits they desired could be achieved with a very modest price increase. A couple of extra dollars per month could go a long way in investing in renewable resources or energy efficiency programs.

Some of the more interesting changes regard environmental quality and renewable resources. Although the magnitude is rather modest, there was an increase in support for protecting the environment. At the same time, there was some decrease in support for using more renewable resources, despite their potential for safeguarding environmental quality. The reason seems to have been increased realism. Before deliberation, many participants had pie-in-the-sky notions of what renewable energy could presently do, and at what cost. During the deliberations, they learned that the large scale use of renewable energy would presently be very costly and might entail some reliability problems. Thus the proportion of post-deliberation participants who indicated that renewable resources should be given the *highest* priority decreased. Yet, at the same time, the proportion who included renewable energy in their preferred portfolio of resources increased considerably. This is also evident in the increased importance that was placed on in using a mixture of resources to meet energy demands.

It is worth adding a few words, finally, about deregulation, which has lately become a hot topic in Texas politics. The State Legislature is in fact currently considering legislation to deregulate the electric utility industry. Although the results in Table 5 suggest some movement away from deregulation, this pattern looks clearer than it is. These three Polls were held before deregulation became a serious issue in Texas politics. Thus neither the briefing materials, nor the small group discussions, nor the expert panels raised the issue more than incidentally, if at all. Some of the other thinking and learning the participants did seems to have had the side-effect of moving them away from deregulation, but the story looks quite different in the remaining five utility Polls, all held after deregulation had begun to surface as a very important issue. There the briefing materials, small group discussions, and expert panels did deal directly with deregulation. And there the results (not shown) are much less clear. Support for deregulation sometimes increases, sometimes decreases, and in most cases, the changes are not statistically significant.

Replication

These, like other Deliberative Polls, are "quasi-experiments" (Campbell and Stanley 1963). The single gross treatment consists of everything that happens to the participants between the pre-deliberation survey, at the end of which they are invited to participate, and the conclusion of the on-site deliberations. In contrast to a couple of the most ambitious Deliberative Polls, these electric utility Polls lack any control group, but it is hard to imagine what "history" (in Campbell and Stanley's terminology) could be affecting anyone not in the experimental groups. There were no prominent developments concerning electric utility issues during the periods of any of these Polls.

The far greater danger, for any Deliberative Poll, is that the results could be largely adventitious, the product of such theoretically inessential influences as the particular personalities or arguments aired on the panels of experts appearing before the plenary sessions. Perhaps any changes in policy attitudes stem not from deliberation or overall information gains but merely information but from the persuasive powers of particularly eloquent or charismatic

panelists. This may in fact be the most worrisome possibility for adventitious effect, but there are many others. The framing of the issues and ordering of topics in the small group discussions; the behavior of the moderators; the nature, phrasing, and sequence of the questionnaire items; the length of the deliberative weekend; the scheduling and order of the small and large group sessions with it; the length of the interval between recruitment and deliberation; the response rate and any sampling biases—all these things could be at least partly responsible for the policy attitude changes we see.

From the standpoint of addressing this general concern, the series of electric utility Polls is a godsend. They address the same broad issues, asking broadly similar questions yet vary considerably in all the theoretically inessential respects just cited. With respect to the expert panels, for example, 231 different experts appeared before at least one of these eight Polls, with the majority (141) of them appearing only once. No one participated in all eight. The arguments advanced varied accordingly. With respect to length, the first Poll (CPL) spanned an entire weekend, Friday through Sunday, while the remaining seven were to varying degrees shortened (in an effort minimize cost and maximize participation). And so on. If Deliberative Polling results generally rest heavily on such theoretically inessential details, we should see some considerable variation in results with this electric utility series.

Yet the findings are all remarkably similar. A glance back at Table 3 shows that the percentage of items exhibiting a statistically significant mean change from pre- to post-deliberation varied from only 32 to 52%, quite a narrow range considering the considerable variation in the number, nature, and phrasing of the items involved. For the first three Polls, whose items were much more nearly identical, the percentages were still more similar: 51, 43, and 52%. Table 4 shows that the mean information gains in the first three Polls, which shared the five information items, are very similar. The CPL questionnaire had two additional information items, but when those are subtracted out the mean information gains are 20% (CPL), 29% WTU), and 20% (SWEPCO). And Table 5 shows that the pre- to post-deliberation changes in policy attitudes in these same three Polls (again sharing a large number of items) were also very similar. There are no statistically significant reversals of sign: if an item shows statistically significant change in one Poll, it shows either a statistically significant change in the same direction or no statistically significant change in the others.[8] Indeed, a quick scan of Table 5 shows a good many strong resemblances in magnitude as well. We do not wish to claim that there are no dissimilarities here. There are a good many of those as well. But we do wish to claim that, considering all the innumerable and sometimes major differences in the one gross experimental treatment, the resemblances are striking.

Explaining the Attitude Change

What accounts for these changes in policy attitudes? Are some types of people more likely to be influenced by the deliberative process than others? Apparently not, if "type" is a matter of social location.

For present purposes, we examine the changes in six of the eleven policy indices. Table 6 presents the ordinary least squares (OLS) estimates of a linear regression model expressing policy attitude change as a function of sociodemographic characteristics. While a handful of statistically significant coefficient estimates dot the table, they are few and far between. The R^2s are low, the adjusted R^2s still lower (sometimes negative), the F statistics mostly insignificant. So who changes? It is not just the rich, not just the poor, not just the well or poorly educated. Sociodemographic variables, on the whole, do very little to explain who changes from deliberation.

So what does explain these attitude changes? Table 7 presents the OLS estimates of another linear regression model, this one expressing policy attitude change as a functions of time 1 information and time 1 attitude. Here the explanation is far stronger. The R^2s and adjusted R^2s are high (for an individual-level attitudinal analysis), the F statistics all highly significant. The negative coefficient estimates on time 1 attitude capture regression toward the mean. More theoretically important, however, are the coefficient estimates on time 2 information. This variable may be viewed as a proxy for (true) information gain, which on the reasoning above is apt to be weakly, perhaps indeed negatively, correlated with observed information gain.

Discussion

The Deliberative Poll is a useful tool for eliciting more informed and thoughtful public opinion. It suggests what public preferences *would be* if the public acted more like an ideal democratic society where citizens are better informed about the issues and more engaged with each other in active discussions of the best courses of action.

In most Deliberative Polls any effect on the course of public policy has been indirect, hard to measure, and presumably small. Except for the stray decision-maker noticing the results directly and taking heed, the hope has been to affect public opinion, which might then in turn affect policy-making. These eight Polls, in contrast, have affected policy-making directly. Utilities paying a substantial sum of money for the results and, still more importantly, aware that the Public Utility Commission is watching are apt to take the results seriously.

And they have. We have seen that deliberation leads to sobered recognition that current renewable technology cannot meet a very high proportion of electricity needs in the short term. But we have also seen that it tends strengthen support for including renewable energy as part of a long-term strategy. Thus large investments in wind energy have been made in West Texas, directly and consciously as a direct result of these Deliberative Polls.

The polls have been successful in informing the participants about the issues involved. The participants felt empowered by considering seriously issues that may never have crossed their minds before. At the end, they participants were asked to rate their experience on a 0 to 10 scale, where 10 meant “extremely valuable.” A vast majority scored the poll a perfect 10. The mean was 9.4. Clearly, those who participated reaped large benefits for themselves, but they also recognized the benefits for the community as a whole.

Table 1

Participation and Response Rates

	Total Interview Attempts	Time 1 Respondents	Time 2 Respondents (=Participants)	Initial Response Rate	Participation Rate	Overall Response Rate
CPL	3039	1246	216	41%	17%	7%
WTU	2563	1230	230	48%	19%	9%
SWEPCO	3437	1478	232	43%	16%	7%
EPE	*	859	170	*	20%	*
HLP	2172	847	192	39%	23%	9%
Entergy	2434	998	173	41%	17%	7%
SPS	2891	1330	222	46%	17%	8%
TU	3090	1298	226	42%	17%	7%
mean	2801	1161	208	42.9%	18.2%	7.7%
(std. dev.)	(436)	(231)	(25)	(3.1%)	(2.2%)	(0.9%)

*Complete data for the El Paso poll are not available due to a computer theft at Delta Strategies, Inc.

Table 2
Representativeness
Proportion of Items Showing a Statistically Significant Difference* between Participants and Non-participants

	Demographic Characteristics	Policy Attitudes	Information	Willingness to Pay for Options	Empirical Premises	Values	Company Evaluations	Conditional Behavior	Ideology	TOTAL
CPL N*	17	29	7	6	10	5			1	75
Proportion	.06	.00	.29	.00	.00	.00			.00	.04
WTU N	17	33	5	7	10	6			1	79
Proportion	.12	.06	.60	.00	.00	.00			.00	.09
SWEPCO *N*	17	33	5	7	10	6			1	79
Proportion	.47	.06	.20	.00	.10	.00			1.00	.18
HLP *N*	14	23	3	7	6			7		60
Proportion	.07	.00	.33	.57	.17			.86		.22
Entergy *N*	13	24	2	6	12		8	6		71
Proportion	.23	.13	.00	.00	.33		.38	.33		.21
SPS *N*	13	21	2	9	25			2		72
Proportion	.08	.05	.50	.00	.04			.50		.07
TU *N*	13	19	2	9	20		1	3		67
Proportion	.08	.00	.00	.00	.25		1.00	1.00		.16
EPE† *N*	14	24	2	5	10	1	13	14	1	84
Proportion	.21	.21	.00	.00	.30	.00	.15	1.00	.00	.32
TOTAL *N*	118	206	28	56	103	18	22	32	4	587
Proportion	.17	.06	.29	.07	.15	.00	.27	.81	.25	.16
TOTAL	104	182	26	51	93	17	9	18	3	503
Excluding EPE†	.16	.04	.31	.08	.13	.00	.44	.67	.33	.14

*In this table, *N* represents the number of relevant items. For ordinal and binary items, significance was calculated using a *t*-test. For categorical items and ordinal items with only three categories, significance was measured using a chi-squared equity of distributions test. Each cell contains the number of items and the proportion significant at the .05 level.
†Due to a computer hardware theft at Delta Strategies, Inc., the El Paso data may be somewhat unreliable.

Table 3
Net Changes after Deliberation
Proportion of Items Showing a Statistically Significant* Difference between Times 1 and 2

	Policy Attitudes	Information	Willingness to Pay for Options	Empirical Premises	Values	Company Evaluations	Conditional Behavior	TOTAL
CPL *N*	21	7	6	7	5			46
Proportion	.71	.57	.17	.14	.60			.52
WTU N	24	5	7	7	6			49
Proportion	.42	.80	.14	.43	.50			.43
SWEPCO *N*	24	5	7	7	6			49
Proportion	.50	1.00	.14	.57	.50			.51
HLP *N*	18	4	8	6			6	42
Proportion	.33	.75	.25	.67			.33	.40
Entergy *N*	19	2	8	7		8	6	50
Proportion	.26	.50	.13	.43		.63	.17	.32
SPS *N*	14	2	9	25			2	52
Proportion	.36	.50	.56	.44			1.00	.46
TU *N*	12	2	10	8		1	4	37
Proportion	.42	1.00	.40	.25		1.00	.75	.46
EPE† *N*	14	2	5	2	1	11	14	49
Proportion	.21	.50	.40	.50	.00	.27	.50	.35
TOTAL *N*	146	29	60	69	18	20	32	374
.05	.42	.72	.28	.42	.50	.45	.47	.43
TOTAL	132	27	55	67	17	9	18	325
Excluding EPE †	.44	.74	.27	.42	.53	.67	.44	.44

*In this table, *N* represents the number of relevant items. Significance was calculated using a difference of means *t*-test for ordinal and binary variables. Each cell contains the number of items and the proportion significant at the .05 level.

†Due to a computer hardware theft at the polling company, the El Paso data may be somewhat unreliable.

Table 4
Information Gain

	Proportion Correct			
CPL	**Time 1**	**Time 2**	**Diff**	**Prob**
Which Energy Source Produces Most Electricity?	0.20	0.68	0.48	0.00
Which Customer Group Consumes Most?	0.57	0.59	0.02	0.66
Which Customer Group Pays Highest Rate?	0.18	0.15	-0.03	0.41
Which Fuel Releases Most Emissions?	0.60	0.73	0.13	0.00
What Agency Regulates Electric Rates?	0.25	0.75	0.50	0.00
What Proportion of Bill Pays for Fuel?	0.22	0.14	-0.08	0.00
How Much Profit Does Utility Make on Fuel?	0.03	0.14	0.11	0.04
Proportion Correct	0.29	0.45	0.16	0.00
WTU				
Which Energy Source Produces Most Electricity?	0.30	0.73	0.43	0.00
Which Customer Group Consumes Most?	0.27	0.33	0.06	0.09
Which Customer Group Pays Highest Rate?	0.50	0.76	0.26	0.00
Which Fuel Releases Most Emissions?	0.62	0.76	0.14	0.00
What Agency Regulates Electric Rates?	0.31	0.85	0.54	0.00
Proportion Correct	0.40	0.69	0.29	0.00
SWEPCO				
Which Energy Source Produces Most Electricity?	0.33	0.62	0.29	0.00
Which Customer Group Consumes Most?	0.53	0.40	-0.13	0.00
Which Customer Group Pays Highest Rate?	0.50	0.86	0.36	0.00
Which Fuel Releases Most Emissions?	0.63	0.72	0.10	0.01
What Agency Regulates Electric Rates?	0.19	0.59	0.40	0.00
Proportion Correct	0.44	0.64	0.20	0.00
EPE				
Which Energy Source Produces Most Electricity?	0.22	0.39	0.17	0.00
Which Fuel Releases Most Emissions?	0.64	0.74	0.10	0.06
Proportion Correct	0.43	0.56	0.13	0.00
HLP				
Which Energy Source Produces Most Electricity?	0.19	0.65	0.46	0.00
Which Customer Group Consumes Most?	0.70	0.58	-0.12	0.01
Which Accounts for Largest Portion of Utility Bill?	0.30	0.53	0.23	0.00
Proportion Correct	0.40	0.59	0.19	0.00

Table 4
Information Gain (cont.)

Entergy				
Which Customer Group Consumes Most?	0.61	0.82	0.21	0.00
Which Accounts for Largest Portion of Utility Bill?	0.29	0.65	0.36	0.00
Proportion Correct	0.45	0.74	0.29	0.00
SPS				
Which Customer Group Consumes Most?	0.54	0.61	0.07	0.07
Which Accounts for Largest Portion of Utility Bill?	0.32	0.52	0.20	0.00
Proportion Correct	0.43	0.57	0.14	0.00
TU				
Which Accounts for Largest Portion of Utility Bill?	0.32	0.68	0.36	0.00
Which Fuel is Used by Most Plants	0.17	0.56	0.39	0.00
Proportion Correct	0.25	0.62	0.37	0.00

Table 5
Change in Policy Attitudes and Empirical Premises

		CPL				WTU				SWEPCO			
	Range	**Mean T1**	**Mean T2**	**Diff**	**Prob**	**Mean T1**	**Mean T2**	**Diff**	**Prob**	**Mean T1**	**Mean T2**	**Diff**	**Prob**
Build Fossil Fuel Plant	0 - 1	0.45	0.64	0.18	0.00	0.43	0.51	0.09	0.00	0.44	0.50	0.06	0.01
Importance: Using Fuel	0 - 10	6.73	7.39	0.66	0.00	6.39	6.49	0.09	0.56	6.64	6.44	-0.20	0.35
Priority: Build Fuel Plant	1-4	1.81	2.60	0.79	0.00	1.69	2.12	0.43	0.00	1.67	2.06	0.38	0.00
Buying/Importing Power	0 - 1	0.30	0.37	0.07	0.00	0.30	0.55	0.25	0.00	0.30	0.44	0.15	0.00
Importance: Importing Power	0 - 10	4.50	5.19	0.69	0.03	4.75	6.89	2.14	0.00	5.00	5.94	0.94	0.00
Priority: Importing Power	1 - 4	1.53	1.67	0.14	0.12	1.50	2.27	0.77	0.00	1.33	1.89	0.56	0.00
Competition is Good	0 - 1	0.61	0.56	-0.05	0.02	0.60	0.52	-0.08	0.00	0.58	0.38	-0.20	0.00
Costs Decrease w/ Competition?	1 - 5	3.64	3.41	-0.23	0.01	3.48	3.53	0.05	0.39	3.40	2.69	-0.71	0.00
Benefits of Competition Worthwhile?	1 - 5	2.93	2.56	-0.37	0.01	2.72	2.52	-0.20	0.09	2.65	2.05	-0.61	0.00
Service Improves w/ Competition?	1 - 5	3.73	3.68	-0.04	0.51	3.87	3.29	-0.58	0.00	3.76	2.93	-0.83	0.00
Promoting Economic Growth	0 - 1	0.65	0.68	0.03	0.09	0.70	0.69	-0.01	0.58	0.69	0.68	-0.01	0.62
Importance: Promoting Growth	0 - 10	8.13	8.57	0.43	0.02	8.66	8.62	-0.04	0.71	8.56	8.34	-0.22	0.13
Growth Over Pollution	0 - 10	4.79	5.04	0.25	0.28	5.28	5.18	-0.10	0.58	5.23	5.23	0.00	0.89
Economic Well-being	0 - 1	0.80	0.77	-0.03	0.03	0.80	0.77	-0.03	0.02	0.83	0.75	-0.08	0.00
Importance: Jobs Created	0 - 10	8.01	7.56	-0.44	0.03	7.93	7.79	-0.14	0.38	8.20	7.62	-0.58	0.00
Importance: Impact on Tax Base	0 - 10	8.02	7.77	-0.26	0.23	8.15	7.58	-0.57	0.00	8.34	7.42	-0.92	0.00
Decreasing Need through Efficiency	0 - 1	0.63	0.77	0.14	0.00	0.63	0.74	0.11	0.00	0.66	0.81	0.15	0.00
Importance: Reduce Need for Plants	0 - 10	8.02	8.50	0.48	0.01	8.04	7.97	-0.07	0.76	8.21	8.28	0.07	0.52
Importance: Reduce Fuel Use	0 - 10	8.38	8.72	0.33	0.05	8.09	8.32	0.23	0.15	8.27	8.78	0.50	0.00
Importance: Research on Efficiency	0 - 10	6.30	7.49	1.19	0.00	6.46	7.97	1.51	0.00	6.75	8.17	1.42	0.00
Priority: Decreasing Need	1 - 4	1.89	2.90	1.01	0.00	1.86	2.60	0.75	0.00	1.97	3.10	1.13	0.00
Minimize Environmental Impact	0 - 1	0.67	0.74	0.06	0.00	0.64	0.67	0.03	0.00	0.67	0.71	0.04	0.00
Importance: Maintaining Envt. Quality	0 - 10	8.45	8.71	0.25	0.06	8.42	8.19	-0.23	0.08	8.55	8.50	-0.05	0.68
Importance: More Envt. Protection	0 - 10	8.05	8.35	0.30	0.05	7.84	8.26	0.42	0.01	8.36	8.79	0.43	0.00
Fossil Fuels Impact Envt?	1 - 5	3.41	3.34	-0.07	0.91	3.33	3.48	0.14	0.15	3.58	3.88	0.29	0.01
Importance: Reducing Pollution	0 - 10	8.94	9.33	0.39	0.00	8.79	8.86	0.08	0.58	9.14	9.13	-0.01	0.97
Importance: Reduce Pollut even if Dear	0 - 10	6.90	7.98	1.08	0.00	6.74	7.49	0.75	0.00	6.98	7.71	0.73	0.00
Rank: Maintaining Envt Quality	1 - 4	2.32	2.88	0.56	0.00	1.96	2.19	0.23	0.01	2.02	2.40	0.38	0.00

Table 5 (cont.)

		CPL				WT				SWEPCO			
	Range	**Mean T1**	**Mean T2**	**Diff**	**Prob**	**Mean T1**	**Mean T2**	**Diff**	**Prob**	**Mean T1**	**Mean T2**	**Diff**	**Prob**
Ensure Equity; Basic Needs Met	0 - 1	0.68	0.70	0.02	0.07	0.70	0.74	0.03	0.00	0.71	0.74	0.03	0.01
Importance: Treat Low Inc. Fair	0 - 10	8.22	8.01	-0.21	0.40	8.49	8.22	-0.27	0.07	8.54	8.43	-0.11	0.47
Importance: All Basic Needs Met	0 - 10	8.50	8.46	-0.04	0.93	8.73	8.91	0.18	0.18	8.85	8.80	-0.05	0.81
Importance: Basic Needs even if Dear	0 - 10	6.31	6.98	0.67	0.00	6.77	7.62	0.84	0.00	6.79	7.49	0.70	0.00
Do Low Income Pay Too Much?	1 - 5	2.58	2.75	0.18	0.23	2.54	2.76	0.23	0.03	2.58	2.92	0.34	0.00
Keeping Costs Low	0 - 1	0.65	0.66	0.01	0.75	0.63	0.56	-0.07	0.00	0.63	0.56	-0.07	0.00
Importance: Using Cheapest Fuel	0 - 10	8.66	7.58	-1.08	0.00	8.69	7.31	-1.38	0.00	8.61	7.24	-1.37	0.00
Rank: Keeping Costs Low	1 - 4	2.33	2.66	0.33	0.00	2.22	2.19	-0.03	0.79	2.22	2.22	0.00	0.97
Using a Mix of Resources*	0 - 1					0.62	0.75	0.13	0.00	0.61	0.78	0.17	0.00
Importance: Mix to Reduce Dependence	0 - 10					8.96	9.17	0.21	0.06	8.88	9.23	0.35	0.01
Rank: Using Mix of Resources	1 - 4					2.07	2.72	0.65	0.00	2.03	2.91	0.88	0.00
Use Renewables	0 - 1	0.72	0.67	-0.05	0.00	0.76	0.73	-0.03	0.04	0.73	0.66	-0.07	0.00
Importance: Using Renewables	0 - 10	8.97	8.55	-0.42	0.01	9.27	9.02	-0.24	0.03	9.25	8.60	-0.65	0.00
Importance: Using Wind/Solar	0 - 10	8.64	8.40	-0.24	0.24	8.98	8.84	-0.14	0.45	8.87	8.21	-0.66	0.00
Rank: Using Renewables	1 - 4	2.81	2.43	-0.38	0.00	2.80	2.43	-0.37	0.00	2.65	2.04	-0.61	0.00
Renewables Now Saves Later?	1 - 5	4.11	3.97	-0.14	0.28	4.36	4.15	-0.22	0.00	4.18	3.98	-0.20	0.09
Priority: Build Renew. Plant	1 - 4	2.57	2.43	-0.14	0.20	2.66	2.85	0.19	0.07	2.60	2.64	0.04	0.71
Miscellaneous													
Doing Enough w/ Renew., Efficiency?	1-5	3.62	2.44	-1.18	0.00	3.60	2.84	-0.76	0.00	3.50	2.43	-1.07	0.00
Importance: Preserve Fuels for Future	0 - 10	8.57	8.17	-0.40	0.02	8.43	7.77	-0.65	0.00	8.57	7.99	-0.59	0.00
High Up Front Cost vs. Later Savings?	0 - 1	0.88	0.92	0.04	0.13	0.93	0.96	0.03	0.25	0.91	0.94	0.02	0.02
Importance: Min. Risk when Investing	0 - 10	7.79	7.94	0.15	0.37	8.22	7.88	-0.34	0.06	7.86	7.48	-0.38	0.09
Importance: Min. Risk if Lowers Return	1 - 10	6.60	6.74	0.14	0.53	6.70	7.10	0.40	0.05	6.48	6.85	0.37	0.09
Seriousness of Air Pollution in Texas	1 - 3	2.20	2.19	-0.01	0.92	2.04	1.93	-0.11	0.01	1.79	1.86	0.07	0.11
Seriousness of Global Warming	1 - 3	2.28	2.32	0.04	0.82	2.15	2.08	-0.10	0.17	2.22	2.29	0.07	0.29
Will Air Pollution Get Worse?	1 - 3	2.56	2.29	-0.27	0.00	2.37	2.23	-0.14	0.01	2.44	2.37	-0.07	0.13
Higher Bills Reduce Consumption	1 - 5	3.90	3.84	-0.06	0.41	3.76	3.77	0.01	0.74	3.67	3.80	0.13	0.18
Higher Bills Hinder Econ. Development	1 - 5	3.65	3.53	-0.12	0.63	3.70	3.68	-0.02	0.75	3.52	3.33	-0.19	0.11

*The "Mix of Resources" questions were not asked of the CPL participants.

Table 6
Changes in Policy Attitudes as Functions of Sociodemographic Characteristics

	Build Fuel Plant	**Importing Power**	**Compe-titon Desirable**	**Decrease Need w/ Efficiency**	**Use Mix of Resources**	**Use Renewable Resources**
	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)
Constant	-0.190	0.112	-0.193	0.116	0.254	-0.041
	(0.094)	(0.102)	(0.108)	(0.059)	(0.101)	(0.070)
Utility Bill	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.006*	0.001	-0.000	-0.000	-0.003*	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Gov't Assist.	0.036	-0.041	0.065	0.013	-0.034	0.026
	(0.043)	(0.046)	(0.049)	(0.027)	(0.047)	(0.032)
Education	-0.022	0.024	0.009	0.006	0.014	0.014
	(0.013)	(0.014)	(0.015)	(0.008)	(0.014)	(0.009)
Employed	0.064*	0.015	-0.068	-0.002	-0.014	-0.021
	(0.031)	(0.034)	(0.036)	(0.020)	(0.034)	(0.023)
Female	-0.028	0.006	-0.001	0.005	0.017	0.004
	(0.027)	(0.030)	(0.032)	(0.017)	(0.030)	(0.021)
Income	0.010	-0.035*	0.008	0.001	0.013	0.006
	(0.009)	(0.010)	(0.011)	(0.006)	(0.010)	(0.007)
Renter	0.051	-0.006	0.023	-0.007	-0.023	-0.013
	(0.032)	(0.035)	(0.037)	(0.020)	(0.036)	(0.024)
Black	-0.095*	-0.033	-0.023	0.019	-0.016	-0.013
	(0.048)	(0.052)	(0.055)	(0.030)	(0.046)	(0.036)
Latino	0.065	-0.049	0.096*	-0.004	-0.166*	0.036
	(0.037)	(0.040)	(0.042)	(0.023)	(0.067)	(0.027)
Pays Bills	0.011	0.054	0.038	0.031	-0.039	0.004
	(0.033)	(0.036)	(0.038)	(0.021)	(0.036)	(0.025)
R^2	0.074	0.030	0.022	0.011	0.054	0.025
Adj. R^2	0.057	0.012	0.003	-0.008	0.027	0.006
F	4.185	1.636	1.140	0.560	1.985	1.322
Significance	0.000	0.085	0.327	0.861	0.029	0.208
N	585	585	564	585	395	585

* Significant at the .05 level (two-tailed).

Table 7
Explaining Policy Attitude Change[†]

	Build Fuel Plant (+)	**Importing Power (+)**	**Compe-tition Desirable (-)**	**Decrease Need w/ Efficiency (+)**	**Use Mix of Resources (+)**	**Use Renewable Resources (-)**
	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)	Estimate (Std. Err.)
Constant	0.525 (0.033)	0.355 (0.029)	0.419 (0.035)	0.595 (0.027)	0.563 (0.037)	0.376 (0.033)
T2 Total Knowledge	-0.165** (0.042)	0.120** (0.043)	-0.086** (0.042)	0.028 (0.024)	0.153** (0.041)	0.028 (0.031)
T1 Policy Attitude	-0.729** (0.042)	-0.898** (0.045)	-0.807** (0.035)	-0.749** (0.036)	-0.843** (0.046)	-0.601** (0.037)
R^2	0.324	0.369	0.448	0.386	0.424	0.278
Adj. R^2	0.322	0.367	0.447	0.385	0.422	0.276
F	161.857	197.302	263.671	212.576	169.046	130.232
Significance	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
N	677	677	651	677	461	677

[†] Data from CLP, WTU, and SWEPCO has been pooled for this analysis. The plusses (+) and minuses (-) in each column heading indicate the direction of overall change for that policy attitude.

* Significant at the .05 level (two-tailed).

** Significant at the .01 level (two-tailed).

NOTES

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[1]But see Delli Carpini and Keeter (1996) and Althaus (1998) for efforts at simulation from survey data. See also, in similar vein, Bartels (1996) and Luskin and Globetti (1997).

[2]SWEPCO's service territory includes portions of Arkansas and Louisiana (hence the Shreveport site) as well of Texas.

[3]National Deliberative Polls, especially in geographically large countries like the U.S., are made costly by transportation and lodging expenses. These regional utility Deliberative Polls have been much less costly, in view of the much more limited size of the area sampled.

[4]The figure was $100 additional for EPE and HLP an $150 additional for all the rest.

[5]There is thus a difference in mode between the pre- and post-deliberation measurements (telephone interview versus self-administered questionnaire). The questions, however, were exactly the same, and the conventional wisdom is that mode effects of this sort are minor.

[6]The willingness-to-take-part items were included mainly by way of market research, at the instance of the companies involved.

[7]And Amarillo is not New York or Honolulu.

[8]There is one near-exception. The item on the importance of maintaining environmental quality shows a nearly significant positive change in the CPL data but a nearly significant negative one in the WTU data.