

# OREGON ELECTRICITY SURVEY

## *Summary of Survey Results and Methodology*

by Stephen M. Johnson, Ph.D., Associate Director  
with the assistance of Kimberlee Langolf

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OREGON SURVEY RESEARCH LABORATORY  
UNIVERSITY OF OREGON  
EUGENE OR 97403-5245  
541-346-0824  
fax: 541-346-5026  
Internet: OSRL@OREGON.UOREGON.EDU  
World Wide Web: <http://darkwing.uoregon.edu/~osrl>

### *Introduction*

The Oregon Public Utility Commission (PUC) and the Office of Energy provide a wide variety of services to the citizens of Oregon. As part of their efforts to evaluate potential changes in electricity delivery in Oregon, the PUC and the Office of Energy contracted with the Oregon Survey Research Laboratory (OSRL) to conduct research on how Oregon adults feel about electricity delivery issues, competition in the electricity industry, and the environmental effects of electricity delivery. Working closely with representatives from the Office of Energy and the PUC, OSRL planned, pre-tested and implemented a telephone survey of 402 Oregon adults. This report begins with a brief summary of the survey results and continues with analysis of:

1. the idea of competition among electric companies
2. factors influencing choice of an electric company
3. changing electric companies
4. what factors are important about electric power systems
5. preferred source of energy
6. the importance of energy conservation
7. and a profile of survey respondents

This report concludes with a summary of the survey and sampling methodologies employed in data collection.

### *Survey Results*

#### *Summary*

Oregonians are not very familiar with the concept of competition between electric companies for the provision of residential electricity. However, Oregonians have strongly held opinions on a variety of issues related to electric energy and hold very specific opinions about what they want from electric utility competition and from electric companies.

By a greater than two to one margin Oregonians felt that their households would be better off if there were competition for electric service. This belief is probably due to the fact that Oregonians also felt that competition would bring lower prices and that service would improve.

Although Oregonians felt that electric competition would be better for their households, very few respondents indicated a strong desire to change from their current electric company. However, almost half the respondents indicated some willingness to change companies and thought that it was important that they be given choices between companies. Whether or not Oregonians switch power companies will depend to a great degree on the nature of the offers people receive from electric companies.

Oregonians have strong feelings about what is important with the production and distribution of electric power. Oregonians feel that electric power must be reliable and dependable and that its production should not harm public health. At the same time, Oregonians want to make sure that electric production protects the environment in general, and fish and wildlife in particular. Slightly less important, but still considered important by most people is that electric production provide low and stable prices for electricity.

More Oregonians prefer that their electric power be generated by a specific method. The most popular is hydroelectric power, although both wind and solar generation are also popular. This preference for a specific type of power generation is so strong that a vast majority think it important that power companies supply them with power generated by their preferred method, and if necessary would be willing to pay more each month to receive such power.

Finally, Oregonians feel strongly that energy conservation is important. They support the continuation of energy conservation assistance and here too would be willing to pay more each month, if necessary, to guarantee that such conservation programs continue. In addition, almost all Oregonians engage in practices that they feel help to conserve electricity and energy.

### ***The Idea of Competition among Electric Companies***

The Oregon Electricity Survey started by asking respondents about their familiarity with the idea of competition among electricity companies. Oregonians have very little familiarity with this idea. Only 7% were “very familiar” with this idea. Many more respondents (27%) were “somewhat familiar” with the idea, but were balanced by an equal

percentage of respondents who were “not very familiar” with the idea. However, all of these groups were smaller than the 39% of respondents who were “not at all familiar” with the idea of electric company competition. Familiarity was higher among respondents who were customers of private utilities, but even among those respondents only 8% were very familiar with the idea.

**[Add bar chart showing familiarity by IOU, POU and Oregon overall]**

Even though respondents were unfamiliar with the idea of electric company competition, they had strong opinions about the effects that such competition might have on them. The majority of respondents (52%) felt that their households would be better off with competing electric companies, while only 24% of respondents felt that their households would be worse off. Fully 16% volunteered that they “did not know” what effect competition would have on their households.

**[Add bar chart on better off/worse off by IOU/POU customer & overall]**

This belief that their household would be better off with competition was not held equally by all groups of respondents. Men were more likely to feel their households would be better off (57%) than were women (50%). Respondents who received their electricity from private companies were more likely to hold this belief (55%) than respondents from public utilities (46%). Finally, support for this belief rose with income from a low of only 31% among respondents with less than \$15,000 in annual household income to a high of 62% among respondents whose household incomes were between \$35,000 and \$75,000.

**[Add bar chart showing better off/worse off by income category]**

In order to learn more about why people did, or did not, support the idea of electric power competition, respondents were asked three specific questions about how they felt things would change with competition. To start, respondents were asked what effect they thought competition would have on electricity prices. Respondents felt that competition would bring lower prices for electricity. Sixty one percent felt that, overall, prices would be lower, and only 24% felt that they would be higher. Here again, significant differences were found between groups of respondents, with a much higher percentage of men than women (70% vs. 55%) believing prices would be lower with competition. Belief in lower prices also declined with age, from a high of 82% among respondents 29 or younger, to a low of 45% among respondents 60 and older. Household income was also a predictor of the belief that competition would bring lower prices, among the poorest respondents, with incomes less than \$15,000, half believed electric prices would increase with competition, but 62%-71% of all other income groups believed prices would fall.

**[Add bar chart showing better off/worse off by income category]**

When asked if competition would bring better or worse service, a plurality of respondents (47%) thought that service would improve, although 34% thought that service would get worse. The most significant difference among respondents on this question appears when respondents are examined by age; here there is a steady decline in support for the idea that competition will improve service, from a high of 67% among those under 29, to a low of 37% among those 60 and older. Renters were also more likely (53%) than homeowners (42%) to believe competition would improve electric service.

**[Add bar chart showing better off/worse off by age]**

The last general question about electric utility competition respondents were asked concerned price stability. Respondents overwhelmingly felt that competition would not stabilize prices, but would rise and fall (75%). Even though most respondents, as previously mentioned, thought competition would benefit their households, lower electricity prices and bring better service. This belief that prices would rise and fall tended to increase with education, going from 70% for respondents with less than a high school education, up to 87% for respondents with masters degrees.

**[Add bar chart showing belief in price stability by IOU/POUcustomers]**

### ***Factors Influencing Choice of an Electric Company***

After asking respondents about their perceptions of the effects of electric utility competition, respondents were next asked how important each of five issues would be to them if they were able to choose their own electric company: low prices; stable prices; reliable service; environmentally friendly sources of electric generation; and a company's involvement in local communities. These five issues were thought to represent criteria which consumers might use to choose between competing electric companies. All five of these issues turned out to be important to respondents, when imagining themselves making choices between electric companies.

The most important issue, based on the percentage of respondents who claimed that the issue was “very important,” was reliable service (95%). Three other issues clustered close together in order of importance: stable prices (67%); low prices (64%); and electricity production from environmentally friendly sources (59%). Even the least important of the five issues, that the electric company involve itself in the community, was very important to 45% of respondents, and somewhat important to another 39%. Of the responses to these five issues, perhaps the biggest surprise is that almost as many respondents saw environmentally friendly forms of electric generation as very important as both stable prices and low prices for electricity.

**[add horizontal bar chart - see figure 2 from PUC]**

Not only were these five issues important to almost all respondents, but there was very little difference between respondents based on demographic characteristics. The strongest

difference occurred over the question of the importance of low prices, where the percentage of respondents who saw this as very important declined dramatically with household income. Seventy five percent of respondents with household incomes below \$15,000 thought low prices were very important. This percentage fell with increasing income, until only 45% of respondents with household incomes above \$75,000 felt low prices to be very important in choosing between electric companies. This result could probably have been expected, since electricity is a necessity and cost places a much larger burden on low-income households than high-income households.

**[Add bar chart on importance of price by income categories]**

The only other significant demographic difference among these five issues was also on the issue of low price, where women were much more likely (70%) than men (57%) to respond that low prices were “very important.” To some extent this gender difference is maybe a reflection of the income difference discussed above, and both results might be explained to a significant degree by differences between male and female income.

***Changing Electric Companies***

At this point respondents had already been asked about both their perceptions of the effects of competition and the importance of specific issues related to choosing an electric company. They were then asked how likely it would be that they would choose a company other than their current electric company if choices were available to them. Very few respondents (11%) replied that they would be “very likely” to change their electric company. However, an additional 37% replied that they would be “somewhat likely” to change their electric company. Only 11% responded that they were “not at all likely” to change their electric company, and an additional 30% responded that they were “not very likely” to change.

**[Add bar chart on likelihood of changing companies by IOU/POU customers]**

Part of the reason that there is mixed support for the idea of changing electric companies can be explained by the fact that most Oregonians are currently satisfied with their electric company. When asked this question 51% replied that they were “very satisfied” with their current company, and only 2% were “not at all satisfied.”

**[Add bar chart on satisfaction with current electric company by IOU/POU customers]**

Results like this need to be carefully interpreted, since almost none of these respondents have been through a process where competing companies have offered to supply them with electric service. Nevertheless, it is clear that only 22% of respondents have strong opinions in support of either changing electric companies or staying with their current companies. The great bulk of respondents (67%) responded in ways that could be

interpreted as showing that whether they would change electric companies would be highly dependent on what the competing companies offered.

In addition to being asked the likelihood that they would personally change electric companies, respondents were also asked how important they thought it was that they be able to choose from among different electric companies. Support for the idea that competition is important was larger than the interest in actually changing companies, with 24% of respondents replying that competition was “very important”, and an additional 39% replying that competition was “somewhat important.” Just as significantly, only 8% of respondents thought competition was “not at all important.”

**[Add bar chart on importance of competition by IOU/POU]**

### ***What Factors are Important about Electric Power Systems***

Respondents were asked to decide the importance of each of seven different issues related to what type of electrical power system is best for Oregonians. Respondents were not given any information about a specific form of electric power system, but were instead asked to make these judgements in the framework of deciding how important these issues were for any type of system that might be built.

The seven issues were: impact on the environment, low electricity prices; effects on public health; protecting fish and wildlife; stable prices; effects on landscape; and reliable and dependable electric power. All seven of these issues were judged to be “very important”, in deciding what type of electric system is best, by more than 50% all respondents.

**[Add horizontal bar chart per example 2 from PUC]**

The two issues felt to be “very important” by the largest number of respondents were first, reliable and dependable electric power, where 92% replied that this issue was “very important,” and second, the effects on public health, where 85% felt the issue to be “very important.”

The next most important issues were that electric systems not harm fish and wildlife and that new electric systems minimally impact the environment. These issues were thought to be “very important” by 70% and 62% of respondents, respectively. Interestingly, these environmental issues were felt to be “very important” by more respondents than the economic issues of low prices and stable prices, which were labeled “very important” by 60% and 58% of respondents respectively. Even the issue seen as important by the fewest number of respondents, the effect of a new electric system of the landscape, still had 54% of respondents who felt it was “very important”, and is in a statistical sense indistinguishable in importance from either low or stable prices.

Here, as in the previous economic questions about choosing an electric company, the major demographic differences between respondents concern the questions on low prices and stable prices, where gender and income each have an effect. The higher respondents household incomes, the less important low prices or stable prices are to them, and these issues are more important to women than they are to men.

**[Add 2 bar charts: 1 on the difference in importance of low prices and stable prices by gender; 2 on the same thing but by income]**

The only other interesting demographic difference concerns the environmental issues. Respondents who prefer that their electricity be generated by dams on rivers are less concerned about environmental issues and protecting fish and wildlife than respondents who favor any other form of electricity generation. The only exception to this is the few respondents (n = 15) who favor nuclear power also have lower concern with environmental impact.

***Preferred Source of Energy***

Today a variety of resources are used to generate electricity. Respondents were asked which of eight sources they preferred. Far and away the source most preferred by respondents (31%) was that electric power be generated through dams on rivers. The second most popular choice tied between wind and solar generation, both at 19%. After these three means of generation, natural gas and geothermal both had some support, but only 9% and 6% respectively. Coal, nuclear, biomass and an undefined “other” each had a 4% or fewer respondents who favored them.

**[Add TABLE listing the eight sources and the percentage picking each]**

<b>Preferred Source of Electric Power</b>	<b>Count</b>	<b>Percent</b>
Dams on rivers	126	33%
Coal	3	1%
Nuclear power	15	4%
Natural gas	36	9%
Wind	78	20%
Solar	76	20%
Geothermal	26	7%
Biomass	10	3%
Something else	15	4%
<i>Refused/Don't know/No answer</i>	17	**
<b>Total</b>	<b>402</b>	<b>100%</b>

Respondents were also asked how important it would be to them that their preferred form of electricity generation be used, if they could choose their own electric company.

Respondents replied that this was an important issue. In fact, 44% of respondents said that this was “very important” and an additional 45% said that it was “somewhat important.” Only 1% of respondents felt that this was “not at all important.”

**[Add bar chart by IOU/POU customers]**

Neither of these two issues, the source of power generation preferred or the importance that the chosen company produces power by the preferred method, showed much variation by any demographic indicator. The most interesting difference was on the question of the importance that the chosen company uses the preferred source of electric production. Here, the respondents who supported the sources of power most commonly identified as environmentally friendly (i.e., wind, solar, geothermal, and biomass), were more likely to feel that it was “very important” that their choice be the method used by any company they might choose. The difference between these respondents, and the respondents who preferred the more common means of electrical production, ranged from 8% to 25% more respondents.

Since not all forms of energy generation are equally economic, respondents were asked if they would be willing to pay more, if necessary, to have their electricity generated from the source that they preferred. Before this point in the survey, respondents had been free to give their opinion on subjects without consideration of real world issues, such as a potential increase in costs. However, even with the issue of potential costs included, respondents still strongly supported the importance of having their electric power generated by their preferred method. Fifty-nine percent of respondents said that they would be willing to pay more, if necessary, to receive power from the source they preferred. This response is 15% higher than the number of respondents who felt that source was “very important,” and includes some respondents for whom receiving power by their preferred method was only “somewhat important” in their choice. Clearly, preference for type of electric power is a deeply held attitude in Oregon.

Similar to the results of the previous question on the importance of source preference, the willingness to pay more for preferred type of electricity generation was a more commonly held attitude by those who preferred sources of electricity thought to be environmentally friendly. From 65% to 77% of those who preferred wind, solar, geothermal or biomass were willing to pay more for their preferred type of power. This compares to 53% willing to pay more for natural gas or nuclear power, down to 45% for hydroelectric power (coal had only 3 respondents who preferred it and consequently did not produce a reliable result).

**[Add table showing source of power people prefer and % willing to pay more to have their preference]**

Finally, for those respondents who indicated a willingness to pay more for electricity generated by their preferred method, they were asked if they would be willing to pay “\$1, \$5, \$10, or more than \$10 a month in addition to your current electric bill.” Of the

respondents willing to pay more, 13% would only be willing to pay \$1 a month, 47% were willing to pay \$5 more a month, 21% were willing to pay \$10 more a month, and 15% were willing to pay more than \$10 a month. Another way of looking at this is to realize that 83% of those willing to pay more will pay \$5 *or more* a month, and that 36% would be willing to pay \$10 *or more* a month.

### ***The Importance of Energy Conservation***

The final content questions for respondents had to do with energy conservation, including financial aid, advice and personal conservation behavior. Respondents were first asked how important it was that conservation programs continue. Respondents gave overwhelming support for the importance of these programs, with 63% reporting that it is “very important” that these programs continue and an additional 29% reporting that it is “somewhat important” that the programs continue. Here, too clear differences exist between those who preferred sources of electric generation thought to be environmentally friendly and those who preferred other sources. Support for energy conservation, as measured by the percentage who thought it was “very important” ranged from 60% to 77% among those who preferred sources of electric generation thought to be environmentally friendly, and from 40% to 56% among those who preferred other sources of electric generation.

[Insert Figure 6]

Next, respondents were asked if they would be willing to pay an increased electric bill in order to make sure that they could have what they wanted, in this case energy conservation. The result was almost identical to the previous willingness-to-pay question, with 59% of respondents willing to pay more. Here, too, the same difference between those who preferred sources of electric generation thought to be environmentally friendly, and those who preferred other sources can be seen. Willingness to pay more, to insure the continuation of conservation programs, ran from 65% to 81% among respondents whose preferred sources of electric generation were thought to be environmentally friendly. This compared to a range of 47% to 58% from those who preferred other sources of electric generation.

As in the previous set of questions, respondents who said they would pay more to continue conservation programs were asked how much they would be willing to pay. The categories used here differed slightly from the questions on preferred source of generation, with respondents asked if they would be “willing to pay \$1, \$3, \$5, or more than \$5 a month.” The different values used here were thought to be more reflective of what conservation programs cost than the amounts used in the earlier preference questions.

Here, too, was strong support among those willing to pay more, for a monthly payment above the minimum cost category of offered of \$1. Seventy-three percent of respondents were willing to pay \$3 *or more* a month, and 43% were willing to pay \$5 *or more* a month.

Finally, respondents were asked if they had done anything personally in the last five years to reduce their use of electricity. Eighty-five percent of respondents replied that they had. Those who claimed to have taken personal energy conservation actions were given the opportunity to explain what actions they had taken. A large number of respondents \_\_\_\_% had done \_\_x\_\_ number of things. These actions fell into \_x\_ categories and included electric use reductions, in particular less use of electric lights, improvements in insulation in residences, switching heating systems to sources other than electricity, and the installation of energy efficient appliances.

### ***Profile of Survey Respondents***

This survey can be generalized to the entire population of Oregon households with a maximum error of  $\pm 4.9\%$  from any average value found in the results. Because of differences between a household survey and general population census, there may be small demographic differences between the survey results and the actual Oregon population. Consequently, it is useful to look at a brief profile of respondents in the survey's sample to add context to the answers to the survey questions.

Fifty-seven percent of the respondents to the survey were female and 43% male. This gender difference is common in household surveys since women are more likely to be in households than men, more likely to answer the telephone than men, and women are more survey compliant. The respondents represent a slightly older than average Oregon population, with only 14% under age 30. However, it is important to remember that the survey was of adults, 18 and older, by household, and did not include children.

Seventy five percent of respondents received their electricity from private utilities, and 22% from public utilities. Sixty five percent owned their homes and 34% rent. Thirty three percent of respondents had a four-year college degree, while 7% had not graduated from high school.

Finally, the most common form of home heating was electricity (46%), the second most common was natural gas (32%), while wood and oil were used by 10% and 9% respectively.

## ***Survey Methodology***

### ***Survey Instrument***

The broad goals of the survey were to obtain valid and reliable information from adults in Oregon on issues related to choosing among competing electric companies, comparisons among different electricity sources, and the relative importance of economic and environmental issues related to electricity generation and delivery.

In designing the survey instrument, OSRL used a multi-path approach which included: reviewing previous energy de-regulation surveys conducted in the Portland area; drawing from OSRL's survey archives and professional networks for questions related to the PUC's and Office of Energy's needs; creating original survey questions with the assistance of PUC and Office of Energy staff; and extensively pre-testing individual questions and the entire survey instrument with members of the survey population, professionals, survey experts, and potential users of the data from the PUC and the Office of Energy. Most of the survey questions are originals developed by OSRL, the PUC, and the Office of Energy, but many are parallel to previous surveys done for Portland General Electric.

The survey instrument was programmed into OSRL's computer-aided telephone interviewing (CATI) system and further pretested. A facsimile of the survey instrument is provided with this document. All interviews were completely confidential, and human subjects approval was obtained.

### ***Sample and Data Collection***

Interviewer training was conducted on December 9, 1998. Interviewing was conducted from 9:00 AM until 9:00 PM, Monday through Sunday (except Sunday morning), until the target sample size of 400 was exceeded. Altogether, OSRL interviewers made 6,949 random-digit-dialed telephone calls to complete 402 interviews between December 14, 1998 – January 8, 1999. Up to 20 calls were made to each valid telephone number. All Oregon households, with telephones, had an equal chance of being selected. The net response rate was 67% and the refusal rate was 19.8%. The average length of the interviews was 14 minutes.

Survey sampling errors are calculated to assist data users in assessing how much confidence to place in a particular survey result. Large random samples, as in this study, reduce sampling error. Results for survey questions in which there is low variability also have less sampling error; for example, a variable with a 50/50 proportional split has wider potential error than a variable with a 90/10 proportional split. For this study of 402, the sampling error, when the entire population of Oregon households is used, is  $\pm 4.9$  percentage points on a variable with a 50/50 proportional split (at the 95% confidence level). For a variable with a 90/10 proportional split, the sampling error, for the entire Oregon household population is  $\pm 2.9$  percentage points.