

Trends in Public Opinion on Offshore Oil Development in California

FINAL TECHNICAL SUMMARY

FINAL STUDY REPORT

PROJECT 25

Principal Investigator:

Eric R.A.N. Smith

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BACKGROUND: Although oil companies first introduced
offshore oil drilling in California, many Californians have
never been fond of it. Especially since the environmental
movement began in the 1960s, opponents of offshore oil
development have made their voices heard through protests,
letter writing campaigns, and public hearings. Pressure
from anti-oil development activists clearly influenced state
and federal decisions to limit offshore oil development with
moratoriums on new leases. Yet despite the public
controversy surrounding offshore oil development, there has
been very little research done on what the public thinks
about offshore oil drilling and related questions.

OBJECTIVES: To explain Californians' perceptions of and
opinions toward offshore oil development and related OCS
activity along the California coast.

DESCRIPTION: This study describes and analyzes the opinions of Californians about offshore oil drilling and related energy development and conservation issues. The bulk of the analysis is based on a series of California Polls conducted between 1977 and 1990. The polls were all designed to be representative cross-sections of California adults. In addition, the report also uses Cambridge Reports, Inc. surveys of the U.S. population, some local polls conducted in Santa Barbara County, California, and a classroom survey of undergraduates at the University of California, Santa Barbara.

SIGNIFICANT CONCLUSIONS: Support for offshore drilling was fairly stable in the 1970s, but from 1980 to 1990, support declined from 60% to only 34%. The most supportive groups were conservatives, Republicans, the least well educated, the old, and minorities. The least supportive groups were liberals, Democrats, the best educated, the young, and whites. Living close to the coast or close to offshore oil producing sites did not seem to have any impact on opinions. Many people seem to be poorly informed about offshore oil development and related issues. Finally, unlike some policy makers and policy advocates, most people do not seem to see energy development and energy conservation as opposing policies.

STUDY RESULTS: Correlational and factor analyses of opinions on offshore oil drilling and related energy development and conservation policies showed that people's attitudes are structured very weakly. The correlations between most pairs of attitudes are substantively trivial (e.g., in the 1977 data, 40 of the 91 inter-item correlations were less than .10). This suggests that many people are poorly informed about energy development and conservation issues. The factor analyses of the 1977 and 1981 data produced two distinct factors--one of which dealt with energy development policies (including offshore oil drilling), the other of which included energy conservation policies. This indicates that people's attitudes toward energy development policies (e.g., oil development, nuclear power) are largely unrelated to their attitudes toward energy conservation policies (e.g., insulating homes, taxing low gas mileage cars, slowing population growth to save energy). Probit and regression models were used to explore the demographic causes of energy development and conservation opinions. Although causes of support for energy development generally also caused opposition to energy conservation, there were a number of exceptions. These patterns of causation provided further evidence that many people do not view energy development and conservation as conflicting policies.

STUDY PRODUCTS: Smith, E.R.A.N., and S.R. Garcia, "Evolving California Opinion on Offshore Oil Development." Ocean and Coastal Management, forthcoming 1995; Smith, E.R.A.N., Final Report on Trends in Public Opinion on Offshore Oil Development in California for the U.S. Department of the Interior, Minerals Management Service Pacific OCS Office, Camarillo, CA. Contract No. 14-35-0001-30471. 72 pp.

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The goal of this research project was to provide a description and analysis of public opinion among Californians toward offshore oil development and related energy development issues. Although public opinion certainly has a role in influencing government decisions in matters such as energy policy, little research has been done about what the public thinks about these issues. We seek to fill that gap.

In this report, we will describe and analyze the opinions of Californians about offshore oil development and about related energy development and conservation issues. We base the bulk of our report on a series of California Polls conducted from 1977 through 1990.¹ These polls were all designed to be representative cross-sections of California adults.² We also make use of Cambridge Reports, Inc. polls of the U.S. population, of some local polls conducted in Santa Barbara County, California, and of a classroom survey conducted in an introductory American politics class at the University of California, Santa Barbara.

We have organized this report as follows. In the first section, we discuss trends in opinion over the last fifteen years. In the second section, we discuss patterns of support and opposition to offshore oil drilling today. In the third section, we examine what one might reasonably expect opinion to be in the future, given what we know about opinions in the last twenty years. In the fourth section, we discuss how people relate their opinions on offshore oil development to their

opinions on other energy development and conservation issues. In the final section, we make a few concluding comments.

1. Opinion Trends³

The earliest California Poll explicitly asking about opinions of offshore oil drilling was asked in 1977. From 1977 to 1980, the California public supported offshore oil drilling (see Figure 1). Probably urged on by the oil price increases resulting from the OPEC embargoes of the 1970s, a majority clearly supported additional coastal oil development. After 1980, however, public support for offshore oil development along the California coast declined substantially. In 1980, 60 percent of California adults agreed with the statement, "Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast." By 1990, that number had dropped to only 34 percent.

[Figure 1 about here]

For purposes of comparison, Figure 1 also shows the responses of a series of Cambridge Reports, Inc. polls in which a national, representative survey of adults was asked,

I'm going to read you several proposals for dealing with the energy crisis, and I'd like you to tell me whether you generally favor or oppose each one. . . .

Expanding offshore drilling for oil and natural gas.

(Mayer 1992, p. 489)

Of course, this question differs from the one asked of Californians, but the content is similar. Keeping this in mind, we can compare the two trends shown in Figure 1.

Two things stand out in when we examine the two trends in Figure 1. First, Californians are much less likely to support offshore oil drilling than are other Americans. The gap between the two groups is generally a bit more than twenty percent. Second, although support for offshore drilling among Americans as a whole is much higher than support for drilling among Californians, the trends are fairly similar. In particular, the support of both groups peaks in October, 1980 and then declines.

Because of the roughly parallel declines following 1980, one might suspect that Californians' lack of support for offshore oil development stems from their closeness, or proximity, to the coast. That seems to be a perfectly reasonable suspicion. One might further suspect that Californians who live along the coast support coastal oil development even less than Californians living inland. That, as we shall see below, does not seem to be true.

Let us now consider the post-1980 trend away from support for offshore oil drilling among Californians. A few comments are needed to help interpret this trend. First, the California Poll question is a general one. It asks about additional oil drilling along the coast, but it does not specify exactly where. The question does not, for instance, identify Santa Barbara or Mendocino as potential sites for future drilling.

If the question did specify a location, it might get different answers. Not only might people living near the potential drilling site change their answers in light of how the new oil production facilities would affect them, but people in other areas might change their answers because of what they associate with particular areas. For instance, many people who have visited or even just seen pictures of the rocky, northern California coast might object to oil drilling along the Mendocino coast because of its beauty. Little can be gained from speculation about how the answers might change if specific locations were stated, but readers should take care not to draw inferences about specific oil development proposals from the California Poll's general question.

Second, small differences in how questions are worded can cause differences in the responses. The California Poll wrote these questions in an agree-disagree format. One result of asking questions in this format is that some people tend to agree irrespective of the content of the question (Couch and Keniston 1960). That is, people with weak opinions tend to agree with statements, no matter what the statements are. It follows that these questions slightly tend to favor drilling more oil. Had they been reworded in the opposite direction so that people were asked to agree with a ban on future offshore oil drilling, support for oil drilling would probably have been a bit lower than the level shown by these questions.

Third, the dip in support for offshore oil in 1989 is almost certainly influenced by the Exxon Valdez oil spill in

Alaska in March, 1989. The California Poll asked its 1989 question in July, when newspapers were still covering the oil spill clean-up efforts and various legal actions against Exxon. Consequently, the level of support for further coastal oil development that we see in 1989 no doubt differs from what it would be had people not been thinking about the recent oil-related disaster. By 1990, the Exxon Valdez presumably no longer jumped to mind when people were asked about offshore oil drilling, so the polls registered an increase in support for drilling over 1989. However, we should note that the 1990 level of support is lower than the 1984 level. From a long-term perspective, the post-1980 decline in support for oil drilling seems to have continued.

Fourth, in these data we see a strong trend away from support for oil drilling. Trends or changes in public opinion are uncommon. When looking at series of public opinion surveys over time, the usual outcome is that there is no change at all.

The most thorough investigation of change in public opinion over time, conducted by Benjamin Page and Robert Shapiro, revealed what the authors described as a "remarkable degree of stability in Americans' collective policy preferences" (1992, p. 45).⁴ Page and Shapiro collected all the public opinion time series available from the major commercial and academic survey organizations from 1935 to 1990 and discovered that fewer than half of the time series show any change at all, and when they did change, most of those changes were quite modest. Fewer than seven percent of all public

opinion items changed as much as twenty percent (the size of the 1980-1990 change in support for oil drilling) and fewer than two percent changed as much as thirty percent (the size of the shift in attitudes toward oil drilling if we measure from 1980 to 1989). By those standards, this ten year trend toward greater opposition to offshore oil drilling is unusual and should be taken seriously by decision makers.

Fifth, the trend in opinion toward offshore oil drilling parallels other, weaker trends in environmental issues. During the Reagan years, public opinion on several issues, which were regularly the subjects of national surveys, moved in an environmentalist direction (although the changes were not as great as the change found in attitudes toward offshore oil drilling). For instance, both in California and in the U.S. as a whole, we see a similar trend in attitudes away from support for nuclear power plants as a source for electricity (Mayer 1992).⁵

A common interpretation of these trends is that the anti-environmentalist stands of the Reagan White House and such prominent policy makers as Interior Secretary James Watt, Environmental Protection Agency administrator Anne Burford, and her Assistant Administrator Rita Lavelle produced an environmental backlash in public opinion (Dunlap and Scarce 1991; Harris 1983; Portney 1984). Another common interpretation of these trends is that public support for energy development became unusually high during 1970s because of the 1973 Arab-Israeli War, the 1974 OPEC boycott, and the

second surge in OPEC oil prices in 1979. When oil prices stabilized and the public's attention moved on to other matters, public enthusiasm for further energy development waned--producing a trend of declining support for such measures as increased offshore oil development (Mayer 1992, pp. 102-08; Page and Shapiro 1992, pp. 149-53). Both explanations are probably at least partly correct.

The implication of these parallel trends is that people are probably not responding to the survey questions solely based on their knowledge of the risks and benefits entailed by offshore oil development. Instead, people are probably responding to the questions based both on their knowledge of oil development and on their general environmentalist attitudes. Indeed, given past research showing that most people do not know many facts about any specific policy decisions (Bennett 1989; Delli Carpini and Keeter 1991; Smith 1989), it would be surprising if the California public were very knowledgeable about offshore oil development. The public is certainly not knowledgeable about other aspects of oil and energy policy, as demonstrated by a January, 1991 Gallup Poll, which showed that even during the fighting in the Gulf War, only 50 percent of the public knew that the U.S. had to import foreign oil to meet its energy needs.⁶ Therefore, it seems reasonable to suspect that the sources of these attitudes do not lie solely in specific knowledge and beliefs about oil development, per se.

2. Patterns of Support and Opposition to Offshore Oil Drilling

When we look at the distribution of opinions toward offshore oil development at any one time, we find the typical pattern of attitudes toward most environmental issues (Van Liere and Dunlap 1980). Although the level of support for offshore development changed over time, the pattern of supporters and opponents held steady across time--appearing from the 1970s to 1990.

Six characteristics distinguish different levels of support for offshore oil drilling. Or perhaps we should say different levels of opposition--in our 1990 data, there was not a single category in which a majority supported additional drilling. The characteristics are: self-identified ideology, party identification, education, age, race/ethnicity, and region of the state. In the description that follows, we present only simple crosstabulations; however, each of these variables--except region--makes a significant, independent contribution to explaining attitudes toward oil drilling when controlling for the other variables in a multivariate model, as we shall show in the next section.

As expected, self-identified conservatives are more likely to support offshore drilling than self-identified liberals. Ideology is measured with a 5-point scale from strong conservative to strong liberal. As Figure 2 shows, conservatives are over four times more likely to support drilling than liberals, 44 percent to 9 percent, respectively.

[Figure 2 about here]

Republicans are more likely than Democrats to support offshore drilling. Party identification is measured with a 7-point scale ranging from Strong Republican to Strong Democrat. As Figure 3 shows, Republicans are far more supportive of drilling than Democrats, with Strong Republicans being the most supportive at 48 percent. Although independent Democrats are the least likely to favor more drilling at 18 percent support, all types of Democrats oppose drilling more than any type of Republican.

[Figure 3 about here]

The least educated are more likely to support offshore oil drilling than the well educated. As Figure 4 shows, 47 percent of those with less than a high school education support drilling, but only 18 percent of those with educations beyond a Master's degree support it. Given the higher voter turnout rate and greater level of political activism among the well educated, this relationship has important political implications for future oil development (Verba and Nie 1972). Those who are most strongly opposed to additional development are those to whom elected officials pay the most attention.

[Figure 4 about here]

When it comes to age, the old are more likely to support offshore oil drilling than the young. As Figure 5 shows, those who were 46 or older in 1990 were far more supportive of additional drilling than those 45 and under.

[Figure 5 about here]

Among racial and ethnic groups, African Americans are the most likely to support offshore oil drilling at 47 percent, whites are the least likely at 33 percent, and Latinos and Asians fall in between (see Figure 6). In a multivariate analysis, these differences are largely, but not entirely explained by the other variables discussed above--especially education. However, the differing racial and ethnic levels of support for oil development may have an impact on decision makers because the most supportive group, African Americans, have been found to be less likely to become actively involved in environmental politics than the least supportive group, whites (Mohai 1990).

[Figure 6 about here]

People residing in one of the four southern Californian, coastal counties near which offshore oil development exists, from San Luis Obispo through Orange, are more likely to support offshore oil drilling than those living elsewhere in the state, by a margin of 39 percent to 32 percent (see Figure 7). This may seem surprising since local opposition to oil development has been very intense. This finding is consistent with previous studies in England which have shown that being close to oil wells or nuclear power plants makes people somewhat more positively inclined toward them (Eiser et al. 1988; Van der Pligt 1986). However in the case of California, these differences seem to be entirely the result of the other variables discussed above. That is, in our multivariate

analyses (reported below), region makes no statistically significant difference.

[Figure 7 about here]

So as to be certain about our finding that proximity to offshore oil development or to the coast makes no difference to people's attitudes, we tested several different measures of proximity to see whether any measure of proximity would work. In addition to the breakdown in Figure 7, we first looked at differences between those living in coastal counties and noncoastal counties. Second, we separated the more rural/suburban oil-producing, coastal counties (San Luis Obispo, Santa Barbara, and Ventura) from the more urban oil-producing counties (Los Angeles and Orange) to see if either of those two regions differed in some fashion. Third, using zip codes, we looked at differences between those living within twenty miles of the coast and those living outside that coastal band. Finally, we looked at how those living within twenty miles of the coast in a county with offshore oil development differed from those living elsewhere. In only one of our analyses was there a significant difference once ideology, party identification, education, age, race, and ethnicity were controlled. In a 1989 survey, residents living within 20 miles of the coast in an oil-producing county were slightly more likely to support additional offshore oil drilling than those living elsewhere in the state.⁷ This category was not very large, however, consisting of only 66 people in a sample of 993 (6.6 percent). In short, we are reasonably confident that

neither proximity to the coast nor proximity to offshore oil development influences general support for further development as measured by the California Poll question quoted above. If proximity does make any difference, the evidence suggests that it is quite small and that being close to the coast increases support for development.

So far we have been looking at how people respond to a California Poll question about increased offshore oil drilling which does not specify where the new drilling will take place. If the question did specify proposed sites for new development, the answers might change. In other words, we need to be careful about generalizing from our general question to any specific proposed offshore oil development.

Luckily for our investigation, two surveys of Santa Barbara county residents, conducted in 1988 and 1990, helped to fill this gap by asking questions about support for "oil drilling off the Santa Barbara coast" (Lankford 1990).⁸ In those years, there were highly publicized proposals to drill additional offshore wells along the Santa Barbara coast. The first survey yielded 39 percent in favor of drilling and 54 percent opposed; the second yielded 37 percent in favor and 54 percent opposed. These numbers are remarkably close to the 34 percent in favor of additional drilling found in the more general 1990 California Poll questions.⁹ In sum, these data point toward the same conclusion as do the California Poll data--proximity to the coast or potential drilling site makes no difference in public opinion.

Together these data provide a strong case that proximity to existing offshore oil wells has essentially no impact on support for additional development. In fact, we would uncritically accept that conclusion were it not for the results we obtained from another, small, unrepresentative data set--our classroom survey.

On March 4, 1993, we administered a survey to an introductory American politics class for freshmen and sophomores at the University of California, Santa Barbara.¹⁰ 243 students returned the questionnaires. The course fulfills several graduation requirements and consequently included a wide range of students, not just future political science majors. However, by no stretch of the imagination were the students a representative cross-section of any interesting group--not even of UCSB students.

Two of the questions we asked the students address the question of the effects of proximity to oil development:

Suppose new offshore oil development platforms were planned to be built in Santa Barbara county. Would you support or oppose their construction?

Suppose new offshore oil development platforms were planned to be built in a remote area off the California coast. Would you support or oppose their construction?

The results: 12 percent of the respondents supported Santa Barbara oil development, while 80 percent opposed it. But when the question asked about a remote area of the California coast, 20 percent supported development, while only 59 percent opposed it.¹¹ Although majorities of our student respondents opposed oil drilling in either location, some of the students in our sample opposed local drilling and approved it elsewhere. The results for the two questions certainly differed enough to attain statistical significance ($p < .05$).

The conclusion we draw from our student survey is that we ought to be careful in accepting the conclusion that proximity makes little or no difference to opinions about offshore oil development. We suspect that proximity does make a difference, but only when the proposed development is--as the NIMBY acronym implies--literally in one's backyard. For many students, oil development is in their backyard. Students living in Isla Vista, which is located on bluffs overlooking the ocean, can easily see oil platforms. Tar regularly washes up on the beaches surrounding Isla Vista and the UCSB campus. Moreover, Isla Vista residents can often smell oil because of natural seepages in the area. For most of Santa Barbara county, however, the oil development would not literally be in their backyards. For most of the county, oil production is something seen at a distance or not at all.

In sum, merely because our student survey found a higher level of support for oil development in remote areas than in Santa Barbara, we are not sure that our conclusion about

proximity making little or not difference--so long as the development is not in one's backyard--would change. Nevertheless, we cannot be certain one way or the other. Unfortunately, there have been no local or statewide surveys that would allow us to investigate the role of proximity in public reactions to proposed or existing oil developments. Therefore, all we can do is accept the conclusion based on our statewide and Santa Barbara surveys that proximity to oil production has little or no effect on attitudes.

We believe that these findings--that proximity to the California coast is unrelated to attitudes toward oil development--warrant special attention. In their excellent study of the politics of offshore oil development, Oil in Troubled Waters, Freudenburg and Gramling open their third chapter by paraphrasing an unnamed senior MMS official:

The problem, he said, was that the agency was only hearing from "the activists who make a lot of noise," but he saw them as a small and unrepresentative slice of the population. The "silent majority" of northern California residents, he continued, were actually in favor of leasing. (Freudenburg and Gramling 1994, p. 35)

Based on their analysis of a series of in-depth interviews and their reading of public testimony at various hearings, Freudenburg and Gramling argued that the official was wrong. The public, they maintained, was strongly opposed to offshore

oil drilling. Our statewide, public opinion survey data confirm Freudenburg and Gramling's assessment: a substantial majority of the public is strongly opposed to additional offshore oil drilling.

We can add to Freudenburg and Gramling's assessment by observing that not only is the prevailing opinion among coastal residents against further offshore oil drilling, but that is also the prevailing opinion in the state as a whole. Although coastal residents no doubt differ from other Californians in the intensity of their views about offshore oil drilling, nothing in our data suggests that they differ from noncoastal residents in the direction of their opinions about proposals for further offshore oil development. A substantial and growing majority opposes offshore oil drilling.

3. The Implications of the Patterns

Two of the above patterns merit particular comment. Most of these variables and their effects should remain roughly constant over time (e.g., ideology, party identification) and cannot reasonably be expected to produce any significant changes in the future. That is not the case with age and education. The distribution of education and the relationship between age and support for oil development should both change in predictable ways in coming years. Because of this, we can make some tentative predictions about future attitudes toward oil drilling off the California coast.

The process of generational change can be seen at work in the age distribution. Leading studies of socialization tell us that people acquire most of their attitudes (e.g., environmentalism) when they are young (i.e., 10-25 years old) and keep those attitudes roughly unchanged throughout their lives.¹² According to this line of reasoning, the pro-development attitudes that we see among the old in our data are largely the result of prevailing attitudes that these people learned in the 1930s, 1940s, and 1950s. In contrast, the pro-environmentalist attitudes of the young can be attributed to the prevailing attitudes since the beginning of the environmentalist movement in the 1960s. The consequence of this generational pattern of change is that in the years to come, older people with pro-development attitudes will be replaced by younger people with pro-environment attitudes. Therefore, we can expect attitudes in the population as a whole to become less supportive of further oil development as older supporters of oil drilling are replaced by younger opponents.

The changing distribution of education should also be expected to have a generational impact on attitudes toward environmental issues. The average level of education in California has been increasing steadily since World War II and is expected to continue to increase in years to come. This shift is driven by the rise of public education in California (as it is all across the nation). Young, well educated people are entering the electorate on one end of the age distribution, while old, poorly educated people are passing on at the other

end. Along with their higher educations, the young bring environmentalist attitudes into the electorate. That is, as we noted above, the well educated who are entering the electorate are likely to oppose offshore oil development more than the poorly educated who are leaving the electorate. Therefore, this process of generational replacement raises the average educational level of the state and, at the same time, is likely to increase the proportion of environmentally inclined citizens who oppose additional offshore oil development.

Let us sum up the implications of these arguments. As the years pass, older, less well educated people who acquired their attitudes before the environmentalist movement began in the 1960s will be replaced by younger, more well educated people who acquired their attitudes after the environmentalist movement was well underway. Because of this generational change, we can expect a slow shift toward less support for oil drilling in the future. In any given year, this change will be quite small, but over the course of the next two decades, we should expect a moderate shift--large enough to have a substantial political impact.

We must qualify this prediction of growing environmentalism. We have been making an argument which some social scientists would describe as "Demography is Destiny." That is, we have been suggesting that demographic changes allow us to predict the future. They do, to some extent. However, a wide range of factors could potentially overwhelm the demographic tides. The environmentalist movement is, itself,

an example. The huge difference in attitudes between the young and old largely reflects the success of the environmentalists. Predictions about environmental attitudes based on data from the 1950s would have proven false within a decade. Other social or political events could similarly alter the direction of attitude change and render our present predictions inaccurate. Another energy crisis such as the OPEC oil embargo, for instance, might alter future opinions on energy issues. In short, our predictions can only be tentative, yet contribute to the understanding of the overall dynamics of attitude change on environmentalism.

4. The Structure of Attitudes¹³

Looking only at the results of single survey questions can be a misleading way to judge the public's preferences in broad policy areas. If we were to look only at questions about support for offshore oil drilling, we might imagine that the public holds a consistent set of preferences regarding energy policies and that their preferences about offshore oil development fit into a coherent strategy for dealing with energy problems. That is not the case.

In order to understand the public's attitudes toward oil development and energy policies, we must go beyond a narrow focus on whether to increase offshore oil drilling. When we do so by taking a look at a range of energy questions, we do not find much evidence of a coherent strategy.

The following survey findings suggest that the public's attitude toward the role of oil development in energy policy might best be described as one of wanting both to have their cake and to eat it at the same time. The public objects to more oil development in California, but the public also recognizes the need for more oil and does not want it to come from foreign sources.

The first question in Table 1 shows that in July, 1989, 87 percent of Californians considered the country's energy situation to be extremely serious or somewhat serious. These results match those of a series of earlier surveys from 1979 through 1984, in which 89 percent or more of the California Poll's respondents agreed with the statement: "Even with strict conservation, we will have to develop a lot more energy sources to meet this country's future energy needs." In short, the public recognizes the energy "crisis" and regards it as serious.

[Table 1 about here]

The second and third questions in Table 1 suggest a solution to the energy shortage. The public thinks that domestic oil supplies are available and that the U.S. should not continue to rely on foreign energy sources. Finally, the last question in Table 1 (from August, 1990) shows the results of a question concerning safety. Half of the public thinks that we can have offshore oil drilling and provide adequate environmental safeguards at the same time.

We may summarize these results as follows: large numbers of people (a) think the energy situation is serious, (b) do not want to solve it by importing foreign oil, (c) think it can be solved by drilling more oil in U.S. coastal waters, and (d) think coastal drilling is reasonably safe. Yet a substantial majority opposes further oil drilling.

The safety question is critical here. In 1990, 50 percent said that further oil development was safe, yet only 34 percent supported it. That is, a substantial number of people (16 percent) believe that further oil drilling is safe, but undesirable. In addition, a far larger number of people (48 percent) believe that further oil development cannot be conducted with adequate environmental safeguards.

Other solutions to the energy problem are possible, of course, but we have no evidence in our survey data to show which ones, if any, Californians regard as desirable. Additional drilling for oil in "government parklands and forest reserves" is rejected by majorities. Nuclear power is equally unpopular. Solar power research was supported in the late 1970s and early 1980s, but about half of the California Poll respondents agreed that "getting solar energy to a point at which it can generate substantial portions of our electrical power needs will take at least twenty years."¹⁴ In short, Californians think that they need the energy, but they don't want to produce it with offshore oil development along the California coast.

There is an obvious solution to these seeming inconsistencies. Californians may simply want to have the benefits of plentiful, inexpensive oil and other forms of energy without bearing the costs of having it produced in California. We saw some evidence of that in our student survey, which showed that the students were more favorably inclined toward oil drilling in remote areas of the California coast than they were toward oil drilling in Santa Barbara county. Unfortunately, the California Poll did not include questions about people's attitudes to increased oil production in remote places or in such places as Alaska, Louisiana, or Texas. So we cannot say with certainty that Californians would be more supportive of oil development elsewhere.

Attitude Consistency

Surveys regularly show large numbers of people supporting various environmentalist principles and policies (Dunlap and Scarce 1991). Yet virtually all reports of these surveys discuss survey questions one at a time. How are people's attitudes on various environmental questions related to one another? No previous studies exist to guide us. More specifically for the purposes of this report, how are people's attitudes on various energy policy questions related to one another? Do they reveal signs that people have carefully thought through related energy production and conservation problems and developed coherent views on them, or signs of poorly considered opinions and inconsistent positions on the

issues? When we look at a range of attitudes on energy issues, do the same patterns of supporters and opponents always appear? These are the questions which we address in this section.

To answer these questions, we examined responses to several sets of questions about energy policy asked by the California Poll in a series of surveys of Californians between 1977 and 1984.¹⁵ The questions differed slightly from one year to another, so that they could address current policy issues (see Appendix A), but the fact that the questions changed is not important to our central findings about them.

When we examine attitudes toward a range of energy policies using either Pearson correlations or factor analysis, we find a surprisingly low level of consistency among attitudes. In other words, people do not consistently take pro-energy development stands or pro-energy conservation stands. The level of consistency is so low that we must conclude that a substantial number of people probably have what Philip Converse (1970) called "non-attitudes." That is, a substantial number of people must be thinking about the problem posed in the survey question for the first time when the survey researcher asks the question. Previous research suggests that some of these people respond in an almost random fashion, so that their opinions change from one interview to the next and so that their opinions on one issue are unrelated to their opinions on other issues (Converse 1964, 1970; Dean and Moran 1977). This does not mean that people have no basis for their

opinions. Even poorly informed people apparently draw on a variety of factual and value-laden considerations when they answer survey questions (Zaller 1992). Moreover, ambiguous questions cause some of the apparent randomness in answers (Achen 1975). Nevertheless, the low correlations indicate that many people are likely to be quite poorly informed about and uninterested in some of the energy questions used in our analysis.

With respect to offshore oil development, we should point out that it, along with nuclear power development, is one of the two best known and most controversial issues in our battery of energy questions. Therefore, we believe that opinions on offshore oil development are likely to be more solidly based in knowledge than most of the other energy policy questions we investigate. In other words, we caution the reader not to assume that people's opinions about offshore oil development are dominated by non-attitudes.

We must begin our examination of the data by noting that the sorts of questions we use differ sharply from the usual sort of questions used in analyses of belief systems and attitude consistency. Traditional investigations of belief systems use questions which tap a wide range of important issues of the day--what Converse (1964, p. 229) once described as a "purposive sampling" of salient issues. Most studies, in fact, exclusively rely on the questions in the CPS/SRC American National Election studies (Bennett 1973, 1974; Bishop 1976;

Bishop et al 1978; Hagner and Pierce 1983; Jennings 1992; Nie and Andersen 1974; Nie, Verba, and Petrocik 1976; Nie and Rabjohn 1978; Petrocik 1978; Pierce 1975; Sullivan et al. 1978). The researchers designing these surveys wrote the questions to assess people's responses to the major election issues of the day. Consequently, the questions in any single survey range widely, covering economic, social, and foreign policy. These surveys rarely asked series of closely related questions, and when they did (for instance on racial integration), the questions were generally not used in analyses of belief systems. Even when researchers use other surveys, they almost always ask a wide range of general questions about politics in the style of the SRC/CPS surveys, rather than a series of related questions about a single policy area (Bishop et al. 1980; Jackson and Marcus 1975; see also Mezey 1981 for an exception).

Our surveys, in contrast to others, use a series of closely related questions about energy policy. Public debates about energy policy addressed all of these policy proposals. Indeed, the California Poll asked these questions because the answers were newsworthy. Legislators in Congress and the California State Legislature eventually enacted some of these ideas into law. Policy makers and members of related attentive publics would certainly regard the relationships among these policies as obvious.

Our choice of questions for analysis leads to two alternative hypotheses. First, the relationships among the attitudes might be very strong because the issues are so closely related. Second, the relationships among the attitudes might be very weak because the issues deal with practical policies and are therefore somewhat complicated.

Let us turn to the data, beginning with the correlations among attitudes. Table 2 presents a set of Pearson correlation coefficients among fourteen questions about energy policies designed to help alleviate shortages. All the questions ask whether respondents agree with a particular policy; there are no general questions about support for environmental principles or symbols. In the world of policy makers, some of the policies are pro-development in that they seek to increase the energy supply (e.g., drilling or importing more oil or liquid natural gas, building nuclear power plants, using more coal); other policies are pro-conservation in that they seek to reduce energy consumption (e.g., tax credits for insulating homes or installing solar energy, improving mass transportation, reducing living standards). Of course, the policies are not mutually exclusive, but we think that there is little doubt that policy makers see pro-development and pro-conservation sides on each issue.

[Table 2 about here]

The first observation we can make is that these correlations are almost all quite small. 40 of the 91 correlations are less than .10 in magnitude--substantively trivial. In fact, 31 of the correlations are not even statistically significant at the .05 level. On average, the absolute magnitude of these correlations is less than the magnitude of the correlations among the attitudes Converse (1964) used in his famous analysis of belief systems leading to his conclusions about non-attitudes.

Converse, of course, looked at major issues of the day, many of which were not very closely related to one another on substantive grounds (e.g., whether the federal government should provide aid to education and whether the government should keep soldiers abroad to resist communism). This led to our first hypothesis that items which were closely related on substantive grounds would be more highly correlated. Here we see that the data do not support this hypothesis. The reason, we suspect, is that these questions are all about "hard" issues (in Carmines and Stimson's (1989) sense of the term). That is, these issues require some minimal knowledge of economics and energy policy and they require the respondents to think critically about the issues. The questions do not have simple subjects or symbols which allow respondents to take positions on the basis of simple emotional responses.

More generally, we suspect that this pattern of poorly related responses will be characteristic of any set of detailed

questions about policy options. As Fischhoff, Slovic, and Lichtenstein (1983, p. 39) put it, "When faced with complex, unfamiliar issues, people may have poorly formulated, even incoherent values." We think we are seeing a large dose of incoherence here. People may know what they want at the level of general principles, but they are less likely to know what those principles imply in terms of practical policies.

Looking in more detail at the correlations, we see that two clusters of correlations stand out. The questions about taxing low gas mileage cars and tax credits for insulating or using solar energy (items D, E, and F), and to a lesser extent the questions about raising gas taxes and improving mass transportation (items C and G) form one cluster. A second cluster is formed by the questions about building seaport terminals for importing oil and liquid natural gas and building nuclear power plants (items K, L, and N). The questions about decontrolling the price of oil and gas and about drilling more oil in state tidelands also seem to fit into this cluster, although more weakly. In broad terms, we can describe these clusters as pro-conservation--the first cluster--and pro-development--the second.

The key observation about these clusters is that they are barely related to one another. The pro-conservation policies are negatively correlated with the pro-development policies, but the correlations are substantively trivial, ranging from $-.05$ to $-.10$. In other words, the evidence strongly suggests

that the public does not view conservation and development policies as opposites. Policy makers may regard these policies as competing alternatives, but most people seem not think of them in that way. They apparently see neither that the conservation and development policies are alternative means of reducing the energy shortage nor that there are relationships among the fourteen individual policies.

Table 3 presents essentially the same patterns for 1981. In Table 3, 21 of the 66 pairs of correlations are less than .10 in magnitude. The 1984 data in Table 4 show much stronger correlations, but this is certainly partly because four of the five questions are energy development questions. The one conservation question--whether to slow the growth of industries that consume large amounts of energy--correlates poorly with the development questions.

In general, the correlations between any two energy development questions or between any two energy conservation questions are higher than the correlations between a development question and a conservation question. The differences are not large, but they indicate that the public does not see development and conservation as being opposites--contrary to the views of many interest groups, policy makers, and other political elites.

[Tables 3 and 4 about here]

A factor analysis of the policy questions provides more support for our interpretation of the data. Table 5 presents a maximum likelihood factor analysis with a varimax rotation for the 1977 data. The usual tests for number of factors--size of eigenvalues and a scree test--showed that a two factor solution fit the data best. Moreover, when a three factor solution was examined, the factor loadings did not make any kind of theoretical sense.

[Table 5 about here]

The variables in Table 5 were sorted in order of their loading on Factor 1 to help interpret the data. The two tax credit items dominate the first factor with loadings of .78 and .90. If we were to follow the traditional rule of thumb to ignore loadings less than .40, we would have to stop with those two items. Taking a substantially more lenient perspective, we can say that improving mass transportation and taxing low gas mileage cars also characterize this factor. By whatever standard, the factor seems to reflect pro-conservation policies. We can interpret the second factor more easily. Four items have loadings greater than .40--building more oil and gas terminals, building more nuclear power plants, building more LNG terminals, and drilling more coastal oil. This factor reflects pro-development policies. Again, we find that pro-conservation and pro-development policies are not opposites. Rather than forming a single factor, they load on different

factors--providing more evidence that the public does not view conservation and development as opposing energy policies.

A factor analysis of the 1981 data, shown in Table 6, yields a pattern similar to the pattern found with the 1977 data.¹⁶ A two factor model clearly fits the data better than any other model. Again, conservation items dominated one factor, while development items dominated the other factor.

[Table 6 about here]

Modeling Pro-Development and Pro-Conservation Attitudes

We can explore people's attitudes toward energy and environmental attitudes more fully by modeling the causes of those attitudes. Instead of focusing on one or two key indicators of environmentalism as our dependent variables, we will look at a set of pro-development and pro-conservation attitudes. As our discussion above implied, we will find that support for more energy development and support for conservation are not mirror images of one another.

Because the issues of the day--and the questions asked by the California Poll--changed from one year to the next, we will not be tracing a single set of issues over time. The development issues--oil drilling along the California coast and nuclear power--will remain the same because those questions were asked repeatedly and because those questions were important, enduring development issues. The conservation

issues will change from one year to another. Because of changing questions, we will use the items that load most strongly on the conservation factor. However, as we shall see, the basic patterns of support for energy development and conservation remain roughly the same over time.

We begin with an examination of four issues in 1977: whether more oil drilling should be allowed along the California coast, whether more nuclear power plants should be built, whether conservation should be encouraged with tax credits for insulating homes, and whether conservation should be encouraged with tax credits for solar energy. The two conservation items may not seem as central to the environmentalist agenda as the energy development items are, but they were, nevertheless, two widely discussed ways to encourage conservation. In our next set of questions in the following table, we will examine two arguably more important conservation items.

For guidance in selecting our independent variables, we turned to previous research. In their well known, comprehensive review of studies of public opinion toward environmental issues, Van Liere and Dunlap (1980) found that five characteristics consistently predicted environmental attitudes--party identification, self-identified ideology, gender, education, and age.¹⁷ Democrats, liberals, women, the well educated, and the young tended to favor pro-conservation stands. Conversely, Republicans, conservatives, men, the

poorly educated, and the old tended to take pro-development stands.

In addition to these variables, we suspected that income and home ownership might have some effect on our two conservation measures--both of which are tax credits for home owners. Moreover, some studies have found evidence that income is related to opinions on environmental issues (Buttel and Flynn 1974; Van Liere and Dunlap 1980). We therefore included both income and a dummy variable measuring home ownership.

We also included measures of race and ethnicity because of suggestions that the environmental movement is elitist. Since the inception of the environmental movement, critics have argued that it predominantly consists of upper socioeconomic status activists and that the costs of many environmental regulations are borne by lower socioeconomic status people and minorities (Morrison and Dunlap 1986). We already have two measures of "elitism" among our independent variables--education and income. In order to find out whether minorities view these matters differently from the white majority, we also included dummy variables measuring whether respondents were African American or Hispanic.

Finally, in order to measure possible NIMBY (Not In My Back Yard) effects or other local interests, we included dummy variables measuring whether respondents lived in a counties with offshore oil production or nuclear power plants. The oil

counties--from San Luis Obispo south to Orange--had existing offshore oil development and were the likely locations of additional offshore oil production. The nuclear counties--Humboldt, Sacramento, San Diego, and San Luis Obispo--had either existing nuclear power plants or plants under construction. Coincidentally, a major fight regarding whether a planned nuclear power plant should proceed was over a plant in San Luis Obispo county--one of the coastal oil-producing counties. These variables were included only in the equations for the oil and nuclear development questions.

[Table 7 about here]

Because our dependent variables were all dichotomies, we estimated probit models. The first two columns of Table 7 show the models explaining our two development items--support for coastal oil drilling and for nuclear power plants. As expected, Democrats, liberals, women, the well educated, and the young tended to oppose oil development, while Republicans, conservatives, men, the poorly educated, and the old tended to support it. Perhaps surprisingly, people living in coastal counties with offshore oil development were also more likely to support additional drilling than were those living elsewhere in the state. Of these variables, the most influential was ideology. That is, environmental attitudes were more strongly associated with self-identified position on a five point liberal-conservative scale than with any other variable.

Notably, income, home ownership, race, and ethnicity had no effect.

The pattern of support for nuclear power development was very similar. Unlike the case with coastal oil development, neither party identification nor education was statistically significant in this equation, but the coefficients were in the same directions as in the oil equation. Race attained borderline significance, with African Americans being more supportive of developing nuclear power. Finally, people living in a county with a nuclear power plant were substantially more supportive of nuclear power than those who lived elsewhere.

Turning to the two equations for the conservation items, we see that most of the coefficients have reversed direction, but that the conservation equations are not mirror images of the development equations. Party identification works in neither equation. Ideology is reversed--liberals are more likely to support the tax credits than conservatives--but the coefficients are far weaker than in the development equations. Moreover, in the solar energy question, ideology is only of borderline significance. Finally, the coefficients for gender have not reversed direction--they both remain negative. Race reaches significance in neither equation, but Hispanics are more likely to support solar energy tax credits than whites (at a borderline level of significance).

In sum, the data in Table 7 show that people who favor development tend to oppose conservation, and vice versa, but the patterns of support for development and conservation shift around a good deal. The equations are not mirror images of one another. There are some important differences between them.

We turn now to our 1981 data, shown in Table 8. In this case, our conservation items are questions about whether population and housing growth should be slowed to reduce energy needs and whether the growth of industries requiring large amounts of energy should be slowed to reduce energy needs. These items, we believe, strike at the core of many conservationists' beliefs about the proper direction for society. Our development items--coastal oil drilling and nuclear power remain the same as those used in Table 7. Our independent variables are the same as in the previous models except that we dropped home ownership because there did not seem to be any direct connection between it and our dependent variables.¹⁸ Finally, we estimated regression models instead of probit models because the dependent variables were all four point scales ranging from strongly agree to strongly disagree (the scales did not have midpoints).

[Table 8 about here]

The energy development equations were similar to those estimated with 1977 data. As before, Democrats, liberals,

women, the well educated, and the young opposed oil drilling along the coast, while Republicans, conservatives, men, the poorly educated, and the old supported it. In addition, both Hispanics and African Americans favored oil drilling, while living in oil-producing coastal counties made no difference. The pattern of attitudes toward nuclear power plants is similar except that education, ethnicity, and race made no difference, while income did--those with high incomes supported development more than those with low incomes. As in the case of coastal oil development, living near a nuclear power plant caused no difference in attitudes toward nuclear power in 1981.

Looking at our two conservation measures, we see a quite different pattern. Only two variables influenced attitudes on whether California's population and housing growth should be slowed. Women favored the idea more than men, while African Americans opposed the idea more than whites. None of the other variables even approached borderline statistical significance. The surprisingly low adjusted R^2 of only 1.2 percent, along with the failure of any variables other than gender and race to affect these attitudes, strongly suggests that answers to this question are largely be non-attitudes.

The question of slowing the growth of industries which require large amounts of energy fares somewhat better. Several of the independent variables reach significance and the explained variances is much higher than in the population growth equation (although not up to the levels of attitudes

toward the development issues). Party identification and ideology both have effects in the expected direction--Democrats and liberals favor slowing growth--but the effects are much smaller than the corresponding effects on attitudes toward coastal oil development and nuclear power, and the coefficients are only of borderline significance. Women tend to favor slowing growth. Education does not have a significant effect, although income does: those with higher incomes tend to oppose slowing industrial growth more than those with lower incomes. Finally, age works in the expected direction, although its effect is not as strong as its effects on the development questions. Older people tend to oppose slowing growth; younger people tend to support it. The remaining variables--ethnicity and race--have no effects.

Finally, we move to our 1984 data, shown in Table 9. The dependent variables are the same as before--coastal oil development, nuclear power development, and slowing the growth of industries which consume large amounts of energy. Table 9 contains no surprises. Democrats, liberals, the well educated, and the young tend to oppose coastal oil development; Republicans, conservatives, the poorly educated, and the old tend to support it. Hispanics are slightly more likely than whites to favor coastal oil development, although the coefficient only reaches borderline significance. With nuclear power, ideology, education, and being Hispanic fail to attain significance, while income has a positive effect. As with the

1981 data, there is no evidence of a NIMBY effect in either equation.

[Table 9 about here]

In our model of whether to slow industrial growth, women were more likely to support the idea, while high income and older people and Hispanics were likely to oppose it (although income and age only reached borderline significance). Party identification, ideology, education, and race had no effects. Finally, we should note that this equation only explained half the variance explained by the two development equations.

We can sum up our findings in this section as follows. The models explaining coastal oil and nuclear power development work better than the models explaining the conservation questions. The coefficients more clearly match the patterns found in previous literature. Moreover, the equations explain larger portions of the variance. Finally, although there is certainly a tendency for variables causing support for development to cause opposition to conservation, and vice versa, there are a large number of exceptions to this pattern. In other words, these models show that development and conservation are not simple opposites.

Discussion

Previous literature about environmental attitudes in the mass public has tended to examine one attitude at a time,

leaving the impression that the public has at least a moderate understanding of environmental issues. Our examination of attitudes on environmental issues paints a different picture.

When asked about a range of environmental policies, the public responds with a seemingly inconsistent set of opinions. Most people favor an almost random mix of both development and conservation measures. Of course, energy development and energy conservation are certainly compatible, and we should not criticize people for favoring policies that some might consider "balanced approaches." Yet we think that most people in the world of policy making--legislators, lobbyists, and others--view these policies as conflicting. Insofar as they do, they have failed to get that message out to the general public.

Another observation we can make about our findings is that previous literature about the causes of environmental beliefs offers a good guide to understanding attitudes toward oil and nuclear development, but a weak guide to understanding attitudes toward conservation. One way to think of this is as a shortcoming in the literature. Researchers have failed to discover the causes of pro-conservation attitudes. Another way to think of this--and we suspect a more accurate one--is as a shortcoming in the environmental movement. Environmentalists have successfully persuaded many people that they ought to oppose energy development policies, but they have failed to persuade as many people that they ought to support energy

conservation policies. The result is that the public is not clearly behind any solution to energy shortage problems.

5. Concluding Comments

Public opinion is a powerful force in politics. Changes in public opinion as large as the changes in Californians' attitudes toward offshore oil development are rare. For these reasons, the corresponding shift in public policy--to a temporary moratorium on granting additional offshore oil leases until the year 2000 and to a similar moratorium on granting new leases in California state waters--is hardly surprising (Cicin-Sain 1990). Given the likely future course of public opinion, away from support for additional oil development, we expect a great deal of pressure on elected officials to make the temporary moratorium a permanent one.

If there are future oil shortages such as those of the 1970s, complete with sharp price hikes and lines at gas stations, both public opinion and policies may change. Without such shortages, however, we doubt that either public opinion or government policies will swing in favor of greater offshore oil development in coming years.

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Notes

1. The California Polls used in this report were conducted by the Field Research Corporation and are archived by the University of California's UC DATA, located at the U.C. Berkeley campus. Neither of these organizations is responsible for the analysis or interpretation of the data appearing here.
2. The California Polls are: No. 7703 (June, 1977); No. 7801 (January, 1978); No. 7902 (May, 1979); No. 8006 (October, 1980); No. 8104 (October, 1981); No. 8401 (February, 1984); No. 8903 (July, 1989); No. 9004 (August, 1990).
3. Most of the content of this section and the next two sections was also reported in Eric R. A. N. Smith and Sonia R. Garcia, "Evolving California Opinion on Offshore Oil Development," Ocean and Coastal Management, forthcoming 1995.
4. See Page and Shapiro (1992, chapter 2) for a general discussion of this matter.
5. California Poll data are not shown. See California Polls No. 7703, 7801, 8002, 8104, 8401, 8903, 9004.
6. Gallup Poll Report, No. 305, February 1991, p. 35; quoted in Peverill Squire, James M. Lindsay, Cary R. Covington, and Eric R. A. N. Smith, Dynamics of Democracy. Madison, Wisconsin: Brown & Benchmark, 1995, p. 121.
7. California Poll 8903. The counties were the same as used for Figure 7--San Luis Obispo County through Orange County.
8. The surveys of representative cross-sections of Santa Barbara adults were conducted by Richard Hertz Consulting. The

questions were: "Do you strongly support, moderately support, moderately oppose or strongly oppose oil drilling off the Santa Barbara coast?" [October, 1988] and "Do you favor or oppose additional oil drilling off the Santa Barbara coast?" [October, 1990].

9. If we were to assume that the questions and sampling techniques were identical, we could say that the 37 percent support in the Santa Barbara News-Press Poll is statistically the same as the 34 percent in the California Poll. However, because of different question wordings and different firms doing the polling, we do not think that such precise claims are justified.

10. This survey was conducted well before the Mobil Oil Corporation's announcement of its "Clearview" proposal to remove an offshore oil platform and build a slant-drilling site in Isla Vista, a student housing neighborhood at the edge of the UCSB campus. The Clearview proposal, therefore, did not influence this survey.

11. In both questions, some students checked the "Don't Know/No Opinion" box. Putting aside the missing data, the sample sizes were 224 for the local development question and 221 for the remote development question.

12. Abramson (1983, chapter 4) provides an excellent general discussion of the topic.

13. Most of the content of this section was also reported in Eric R. A. N. Smith and Sonia R. Garcia, "Californians'

Attitudes Toward Energy Policy." Paper delivered at the 1994 of the Western Political Science Association, Albuquerque, New Mexico, March 1994.

14. California Polls 7902 and 8002.

15. The polls were: No. 7703 (June, 1977); No. 8104 (October, 1981); and No. 8401 (February, 1984).

16. The 1984 data could not be factor analyzed because the split-half design of the survey did not leave enough items on either half for analysis.

17. Van Liere and Dunlap also examined evidence that urban residents were more likely to favor environmentalism than rural residents. We do not have adequate data to examine this hypothesis.

18. We did, however, test home ownership in the model before dropping it. It had no effect.

Figure 1. Support for More Oil Drilling in the U.S. and in California

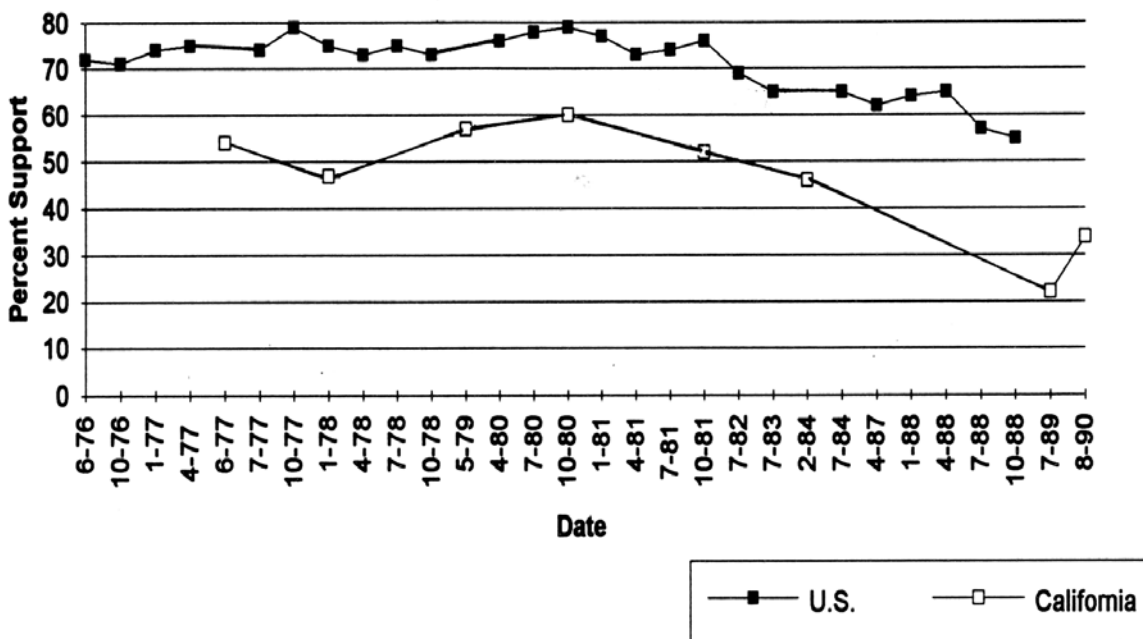


Figure 2. Support for Drilling by Self-Identified Ideology

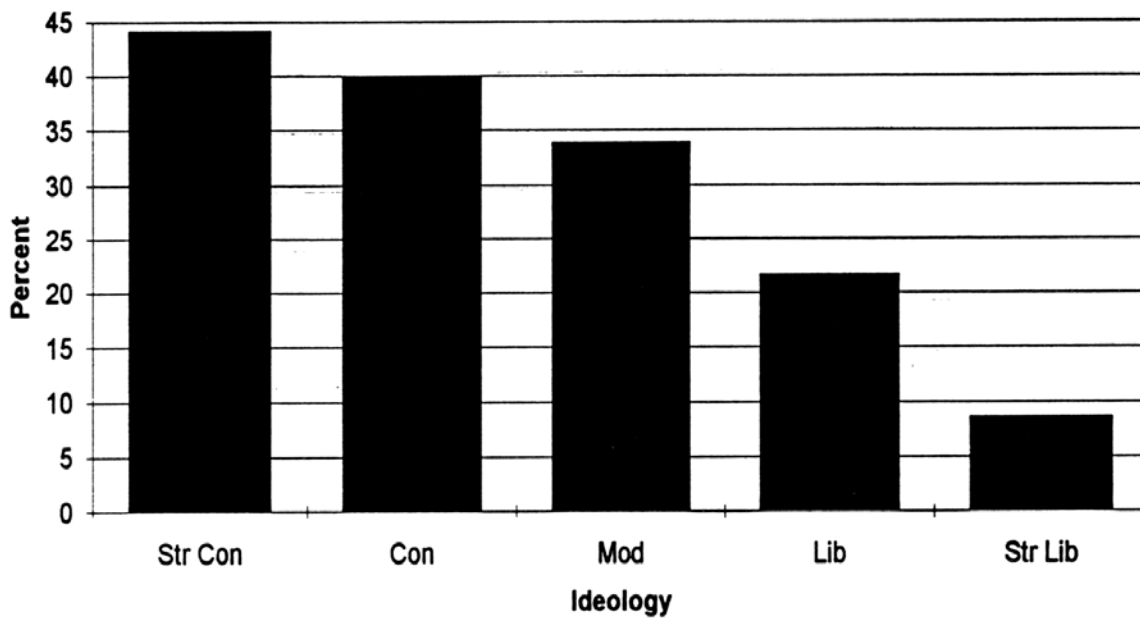


Figure 3. Support for Drilling by Party Identification

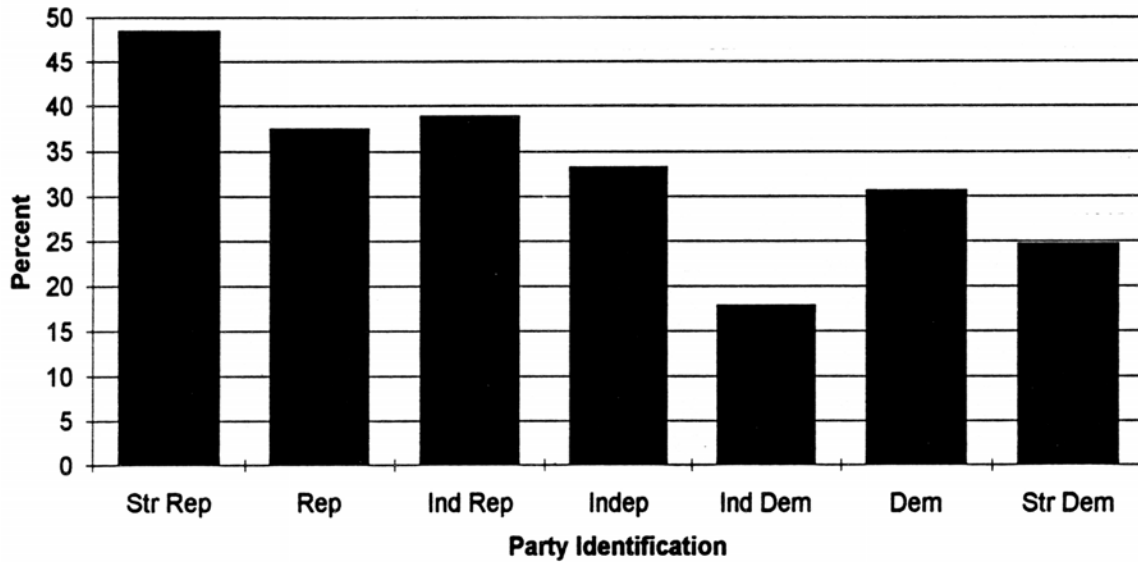


Figure 4. Support for Drilling by Education

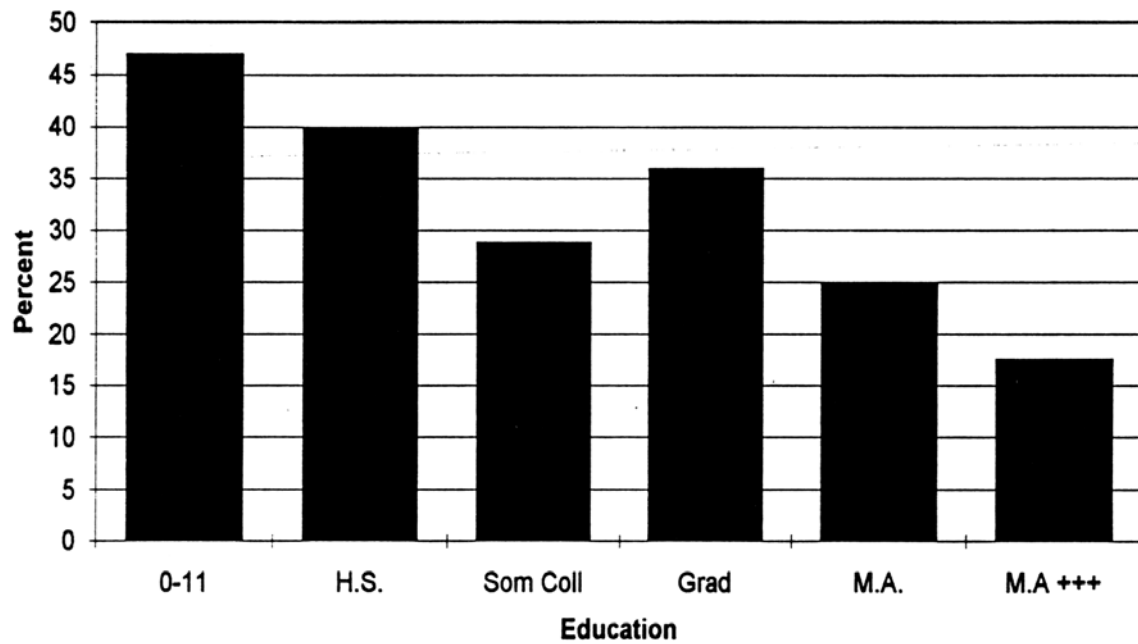


Figure 5. Support for Drilling by Age

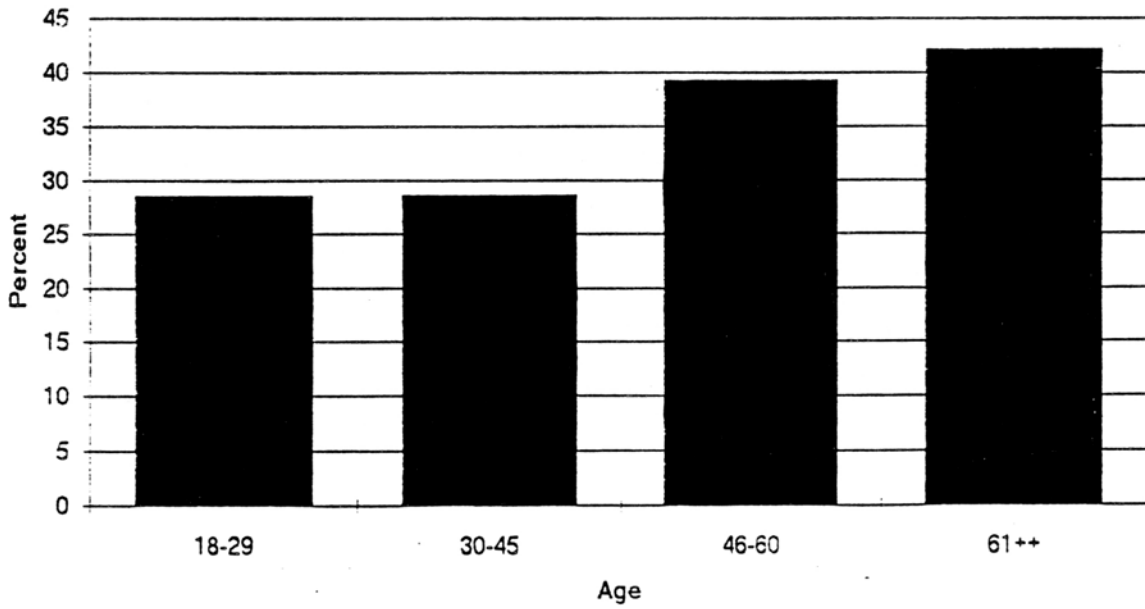


Figure 6. Support for Drilling by Race and Ethnicity

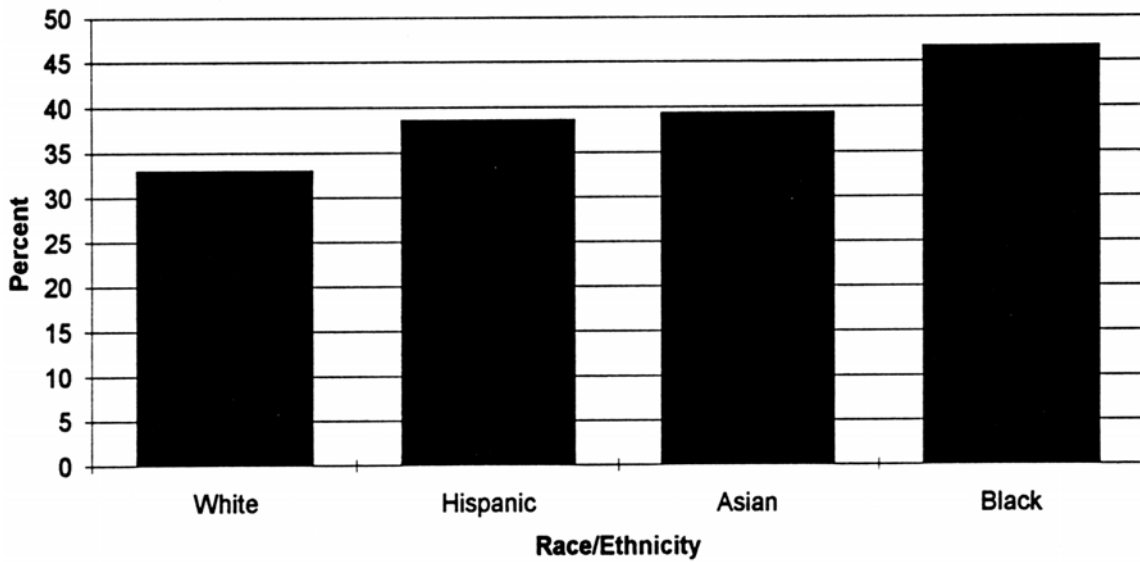


Figure 7. Support for Drilling by Region of State

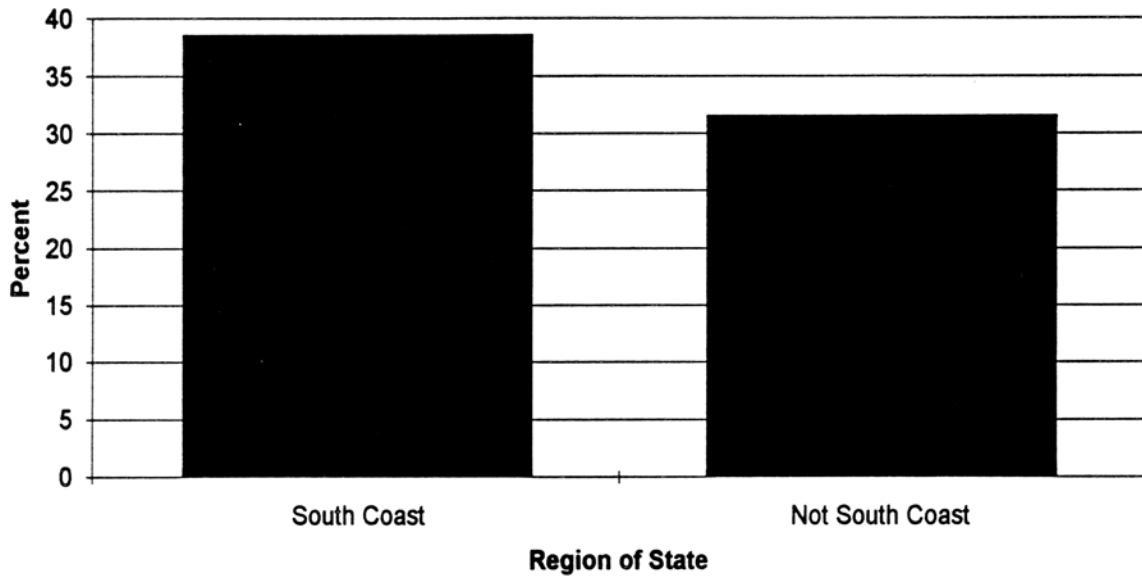


Table 1: Attitudes on Various Energy Issues

How serious do you think this country's energy crisis is right now? (1989)	Extremely Serious 46%	Somewhat Serious 41%	Not too Serious 9%	Not at all Serious 2%	No Opinion 2%
What about the offshore coastal areas of the United States...How much oil is there that could be discovered and developed in these areas? (1989)	A great Deal 27%	Quite a bit 20%	Some 19%	Only a little 9%	No Opinion 25%
How important do you believe it is for the U.S. to cut down on the amount of oil that it imports from foreign countries? (1989)	Extremely Important 48%	Somewhat Important 37%	Not too Important 11%	No Opinion 3%	
We can have oil drilling in offshore coastal areas and at the same time provide adequate environmental safeguards. (1990)	Agree 50%	Disagree 48%	No Opinion 4%		

Table 2. Correlations among Energy Attitudes in 1977

	A	B	C	D	E	F	G	H	J	K	L	M	N
A	1.00												
B	-0.07	1.00											
C	0.07	-0.02	1.00										
D	0.03	0.06	0.23	1.00									
E	0.00	0.02	0.13	0.31	1.00								
F	-0.01	0.07	0.16	0.30	0.73	1.00							
G	-0.07	0.09	0.16	0.18	0.20	0.26	1.00						
H	0.12	0.10	-0.06	-0.14	-0.03	-0.05	-0.07	1.00					
J	0.19	0.11	-0.08	-0.09	-0.05	-0.08	-0.07	0.23	1.00				
K	0.16	0.13	-0.06	-0.10	-0.06	-0.05	-0.05	0.19	0.52	1.00			
L	0.16	0.09	-0.04	-0.07	-0.05	-0.05	-0.064	0.15	0.39	0.52	1.00		
M	-0.05	0.13	0.14	0.16	0.08	0.11	0.16	-0.11	-0.12	-0.13	-0.14	1.00	
N	0.18	0.08	-0.05	-0.08	-0.07	-0.07	-0.09	0.18	0.34	0.34	0.34	-0.04	1.0
O	-0.03	0.11	0.07	0.01	0.03	0.13	0.14	-0.02	-0.06	-0.02	-0.03	0.06	-0.05

Variables

- A: DECONTROL OIL AND GAS PRICE TO ENCOURAGE EXPLORATION
- B: CONTROL PRICES, BUT GIVE TAX BREAKS FOR OIL EXPLORATION
- C: RAISE GAS PRICES TO REDUCE DRIVING
- D: TAX LOW GAS MILEAGE CARS
- E: TAX CREDIT FOR INSULATING HOMES
- F: TAX CREDIT FOR SOLAR ENERGY IN HOMES
- G: IMPROVE MASS TRANSPORTATION
- H: CUT AIR POLLUTION STANDARDS & SUBSTITUTE COAL FOR OIL AND GAS
- J: DRILL MORE OIL IN TIDELANDS ALONG COAST
- K: BUILD MORE TERMINALS FOR UNLOADING OIL
- L: BUILD MORE TERMINALS FOR UNLOADING LIQUID NATURAL GAS (LNG)
- M: CUT BACK ON LIVING STANDARDS TO CONSERVE ENERGY
- N: BUILD MORE NUCLEAR POWER PLANTS
- O: GIVE SOLAR ENERGY MORE PRIORITY

Source: Data are from California Poll 7703, June 17 - July 2, 1977

Table 3. Correlations among Energy Attitudes in 1981

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	-0.04	1.00										
C	0.22	-0.04	1.00									
D	0.26	-0.08	0.45	1.00								
E	-0.09	0.34	-0.13	-0.17	1.00							
F	0.16	-0.26	0.14	0.12	-0.20	1.00						
G	-0.14	0.15	-0.11	-0.17	0.31	-0.04	1.00					
H	-0.10	0.34	-0.11	-0.11	0.42	-0.15	0.20	1.00				
I	-0.17	0.30	-0.13	-0.29	0.41	-0.15	0.38	0.28	1.00			
J	-0.01	0.16	-0.01	-0.09	0.18	-0.02	0.14	0.22	0.23	1.00		
K	0.21	-0.10	0.08	0.19	-0.11	0.19	-0.08	-0.13	-0.17	-0.05	1.00	
L	0.13	-0.03	0.04	0.02	-0.04	0.08	0.01	-0.05	-0.09	-0.05	0.23	1.00

Variables

- A: CUT BACK ON LIVING STANDARDS TO CONSERVE ENERGY
- B: REXLAX POLLUTION CONTROLS SO THAT MORE COAL CAN BE BURNED
- C: SLOW POPULATION/HOUSING GROWTH TO SAVE ENERGY
- D: SLOW INDUSTRIAL GROWTH TO SAVE ENERGY
- E: DRILL MORE OIL IN TIDELANDS ALONG COAST
- F: MAINTAIN AUTO EMISSION STANDARDS EVEN IF LOW GAS MILEAGE
- G: BUILD MORE TANKER TERMINALS/FACILITIES FOR LIQUID NATURAL GAS
- H: DRILL MORE OIL IN GOVT PARKLANDS/FOREST RESERVES
- I: BUILD MORE NUCLEAR POWER PLANTS
- J: DECONTROL PRICE OF NATURAL GAS TO ENCOURAGE PRODUCTION
- K: IMPROVE MASS TRANSPORTATION WITH TAX REVENUES
- L: START CRASH PROGRAM TO DEVELOP METHANOL AS FUEL

Source: Data are from California Poll 8104, October 26 - November 1, 1981.

Table 4. Correlations among Energy Attitudes in 1984

	A	B	C
A	1.00		
B	.04	1.00	
C	-.12	.43	1.0

	D	E
D	1.00	
E	.24	1.00

Note: The 1984 sample was a split-half sample with items A, B and C on one form and items D and E on the other form.

Variables

- A: SLOW INDUSTRIAL GROWTH TO SAVE ENERGY
- B: DRILL MORE OIL IN TIDELANDS ALONG COAST
- C: BUILD TANKER TERMINALS, PIPELINES & FACILITIES FOR LIQUID NATURAL GAS

- D: DRILL MORE GAS/OIL IN GOVT PARKLANDS AND FOREST RESERVES
- E: BUILD MORE NUCLEAR POWER PLANTS

Source: Data are from California Poll 8401, February 1 - February 9, 1984.

Table 5 Maximum Likelihood Factor Analysis of 1977 Energy Attitudes

<u>Variable</u>	<u>Factor1</u>	<u>Factor2</u>
Build More Oil/Gas Terminals	-.18	.74
Build More Nuclear Power Plants	-.17	.52
Reduce Clean Air Standards/Use Coal	-.17	.28
Build More LNG Terminals	-.15	.60
Drill More Coastal Oil	-.13	.63
Decontrol Oil & Gas Prices	.03	.27
Tax Breaks for Oil Exploration	.05	.11
Give Solar Energy High Priority	.13	-.04
Cut Living Standards to Conserve	.16	-.18
Raise Gas Taxes	.24	-.07
Improve Mass Transportation	.30	-.10
Tax Low Mileage Cars	.35	-.08
Tax Credit for Insulation	.78	.10
Tax Credit for Solar Energy	.90	.11
<hr/>		
Eigenvalue	6.56	3.26
Percent Variance Explained	.47	.23

Note: Varimax rotation

Source: Data are from California Poll 7703, June 17 - July 2, 1977

Table 6. Maximum Likelihood Factor Analysis of 1981 Energy Attitudes

<u>Variable</u>	<u>Factor1</u>	<u>Factor2</u>
Keep Auto Emission Standards	-.24	.16
Improve Mass Transportation	-.19	-.21
Cut Living Standards	-.12	.40
Slow Industrial Growth	-.11	.69
Develop Methanol Rapidly	-.10	-.07
Slow Population/Housing Growth	-.01	.56
Decontrol Natural Gas Prices	.31	-.04
Build More LNG Terminals	.39	-.24
Cut Pollution Controls on Coal	.55	.01
Build More Nuclear Power Plants	.57	-.29
Drill More Oil in Parks/Forests	.58	-.07
Drill More Coastal Oil	.65	-.14
<hr/>		
Eigenvalue	3.35	1.31
Percent Variance Explained	.28	.11

Note: Varimax rotation

Source: Data are from California Poll 8104, October 26 -
November 1, 1981.

Table 7. Probit Models of Development/Conservation Attitudes, 1977

Variable	Develop More:		Tax Credit for:	
	Coastal Oil	Nuclear Power	Insulating Home	Solar Energy
Party Id	-.052** (.026)	-.028 (.028)	.006 (.026)	.011 (.026)
Ideology	-.256** (.046)	-.286** (.049)	.101** (.047)	.077* (.046)
Female	-.386** (.101)	-.445** (.110)	-.166 (.102)	-.137 (.101)
Education	-.079** (.019)	-.027 (.019)	.045** (.019)	.066** (.019)
Income	-.022 (.023)	.031 (.123)	-.000 (.023)	.018 (.023)
Own	.081 (.116)	.013 (.123)	-.066 (.118)	-.167 (.117)
Age	.010** (.003)	.008** (.004)	-.011** (.003)	-.008** (.003)
Hisp	-.125 (.156)	-.141 (.165)	-.021 (.157)	.299* (.164)
Black	.246 (.229)	.545* (.294)	-.150 (.263)	.163 (.258)
Oil County	.217** (.100)	-	-	-
Nuke County	-	.512** (.186)	-	-
Intercept	1.394** (.313)	1.410** (.331)	0.648** (.318)	.254 (.314)
Log Likelihood	-441.31	-368.20	-415.04	-416.69
N	722	695	761	752

** p < .05, Significant

* .05 < p < .10, Borderline significance

Source: Data are from California Poll 7703, June 17 - July 2, 1977

Table 8. Regression Models of Development/Conservation Attitudes, 1981

Variable	Develop More:		Slow:	
	Coastal Oil	Nuclear Power	Population Growth	Industrial Growth
Party Id	-.065** (.020)	-.090** (.021)	.020 (.021)	.033* (.019)
Ideology	-.209** (.035)	-.148** (.036)	-.012 (.037)	.057* (.032)
Female	-.126* (.073)	-.373** (.075)	.215** (.077)	.363** (.068)
Education	-.049** (.017)	-.013 (.018)	.010 (.018)	-.014 (.016)
Income	.012 (.019)	.052** (.019)	-.029 (.020)	-.074** (.018)
Age	.014** (.002)	.016** (.002)	-.003 (.002)	-.008** (.002)
Hispanic	.244** (.122)	.127 (.124)	.077 (.127)	-.006 (.114)
Black	.384** (.148)	-.165 (.152)	-.371** (.156)	-.134 (.140)
Oil County	.096 (.073)	-	-	-
Nuke County	-	.036 (.097)	-	-
Intercept	1.581** (.183)	1.049** (.187)	1.569** (.190)	2.004** (.169)
Adjusted R ²	.152	.171	.013	.089
N	859	866	864	866

** p < .10, Significant

* .05 < p < .10, Borderline significance

Source: Data are from California Poll 8104, October 26 - November 1, 1981.

Table 9. Regression Models of Development/Conservation Attitudes, 1984

Variable	Develop More:		Slow:
	Coastal Oil	Nuclear Power	Industrial Growth
Party Id	-.052** (.025)	-.119** (.024)	.003 (.023)
Ideology	-.120** (.042)	-.057 (.042)	.050 (.040)
Female	-.127 (.096)	-.291** (.096)	.251** (.092)
Education	-.080** (.023)	.003 (.022)	-.032 (.022)
Income	-.005 (.025)	.040* (.023)	-.041* (.023)
Age	.013** (.003)	.010** (.003)	-.005* (.003)
Hispanic	.304* (.159)	.031 (.162)	.463** (.152)
Black	.166 (.199)	.266 (.207)	.245 (.190)
Oil County	.139 (.096)	-	-
Nuke County	-	-.058 (.127)	-
Intercept	1.538** (.245)	0.937** (.241)	1.898** (.230)
Adjusted R ²	.116	.120	.065
N	527	512	515

** p < .10, Significant

* .05 < p < .10, Borderline significance

Source: Data are from California Poll 8401, February 1 - February 9, 1984.

APPENDICES

Appendix A: Question Wording

1977 Energy Questions

Now I'm going to read you a series of statements about the energy situation and ways that have been suggested to take care of it. I'd like you to tell whether you agree or disagree with each of the statements as I read it. Here's the first one ...

- A. The price of oil and gas produced in the U.S. should be decontrolled and allowed to go as high as necessary to encourage more exploration and drilling for oil and gas in the U.S.
- B. Oil and gas prices should be controlled, but tax breaks should be allowed to encourage more oil and gas exploration and drilling in the U.S.
- C. Gasoline taxes should be increased to get people to drive their cars less than they do now.
- D. People who buy cars that get low gas mileage should pay an extra tax, while people who buy cars that get very high gas mileage should get a tax rebate.
- E. Homeowners who insulate their homes should get a tax credit to pay part of the cost.
- F. People who install solar energy devices in their homes should get tax credits to help pay part of the cost.
- G. More tax revenues should be used to help subsidize the cost of improved public mass transportation facilities.
- H. Air pollution standards should be reduced somewhat to permit the substitution of coal, which is more plentiful in this country than oil and gas.
- J. California should allow oil companies to drill more oil wells in state tidelands along the seacoast.
- K. California should allow oil companies to build more tanker terminals for unloading oil and gas tankers in California.
- L. California should allow oil companies to build a terminal near Los Angeles or San Francisco for unloading tankers carrying Liquified Natural Gas.
- M. It would be better to cut back on living standards in order to conserve energy rather than to go on using up natural resources at the present rate.

N. More nuclear power plants should be constructed to meet future energy needs.

O. Solar energy could solve the energy shortage within the next few years if it was given higher priority for research and development.

1981 Energy Questions

Now I'm going to read you a series of statements about the energy situation. I'd like you to tell me whether you agree or disagree with each of the statements as I read them. Here's the first one. . . . Do you agree or disagree? Do you (agree)(disagree) strongly or somewhat?

A. It would be better to cut back on living standards in order to conserve energy rather than to go on using up natural resources at the present rate.

B. Pollution controls should be relaxed so that there can be more coal burning power plants in California.

C. Population growth and housing development in California should be slowed down to reduce energy needs.

D. The growth of industries requiring large amounts of energy should be slowed down to reduce energy needs.

E. Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast.

F. California automobile emissions standards should be maintained even if it means getting slightly fewer miles per gallon of gasoline used.

G. The building of tanker terminals, pipelines and facilities for liquified natural gas should be allowed in California.

H. Current government restrictions prohibiting the drilling of oil and gas wells on government parklands and forest reserves should be relaxed.

I. The building of more nuclear power plants should be allowed in California.

J. To encourage more exploration and drilling for natural gas in the U.S., the price of natural gas should be completely decontrolled.

K. More tax revenues should be used to help subsidize the cost of improved public mass transportation facilities.

L. A crash program should be started at once to develop methanol as a fuel to be used as an alternative to gasoline.

1984 Energy Questions

Now I'm going to read you a series of statements about the energy situation. I'd like you to tell me whether you agree or disagree with each of the statements as I read them. Here's the first one. . . . Do you agree or disagree? Do you (agree)(disagree) strongly or somewhat?

A. The growth of industries requiring large amounts of energy should be slowed down to reduce energy needs.

B. Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast.

C. The building of tanker terminals, pipelines and facilities for liquified natural gas should be allowed in California.

D. Current government restrictions prohibiting the drilling of oil and gas wells on government parklands and forest reserves should be relaxed.

E. The building of more nuclear power plants should be allowed in California.

Appendix: Coding of Variables

Party Identification: 0=Strong Republican, 1=Weak Republican, 2=Independent leaning on Republican, 3=Independent leaning on Democrat, 4=Pure Independent, 5=Weak Democrat, 6=Strong Democrat.

Ideology: 0=Strong Conservative, 1=Weak Conservative, 2=Moderate, 3=Weak Liberal, 4=Strong Liberal.

Gender: 0=Male, 1=Female.

Education: (1977) 1=no formal schooling; 2= 1st-8th; 3= 9th gr.; 4= 10th gr.; 5= 11th gr.; 6= 12th gr.; 7= vocational/trade; 8= 1yr college; 9= 2 yrs. college; 10= 3 yrs. college; 11= 4 yrs college; 12= 5 yrs college; 13= 6 yrs. college; 14= 7 yrs. college; 15= 8+ yrs. college.

(1981, 1984) 1= 8th grade; 2= some high school; 3= graduated high school; 4= trade/vocational school; 5= 1-2 yrs college; 6= 3-4 yrs. college; 7= college grad; 8= 5-6 yrs college; 9= masters degree; 10= work past masters.

Income: (1977) 1=under 3,000; 2= 3K-4,999; 3= 5K-6,999; 4= 7K-9,999; 5= 10K-14,999; 6= 15K-19,999; 7= 20K-24,999; 8= 25K-29,999; 9= 30K-34,999; 10= 35K-39,999; 11= 40K-44,999; 12= 45K-49,999; 13= 50K or more.
(1981) 1= under 7K; 2= over 15K; 3= under 15K; 4= over 15K; 5= under 25K; 6= over 25K; 7= under 40K; 8= over 80K.
(1984) 1= under 7K; 2= 7K-10K; 3= 10K-15K; 4= 15K-20K; 5= 20K-25K; 6= 25K-30K; 7= 3-K-40K; 8= 40K or mor

Own: 0= rent; 1= owns home.

Age: continuous.

Hispanic: 1=hispanic; 0=non-hispanic. Black: 1= Black/African American; 0= non-Black.

Oil County: (1977) Individual counties include: San Luis Obispo, Santa Barbara, Ventura, Los Angeles and Orange.

Nuke County: (1977) Individual counties include: San Luis Obispo, San Diego, Sacramento and Humbolt.