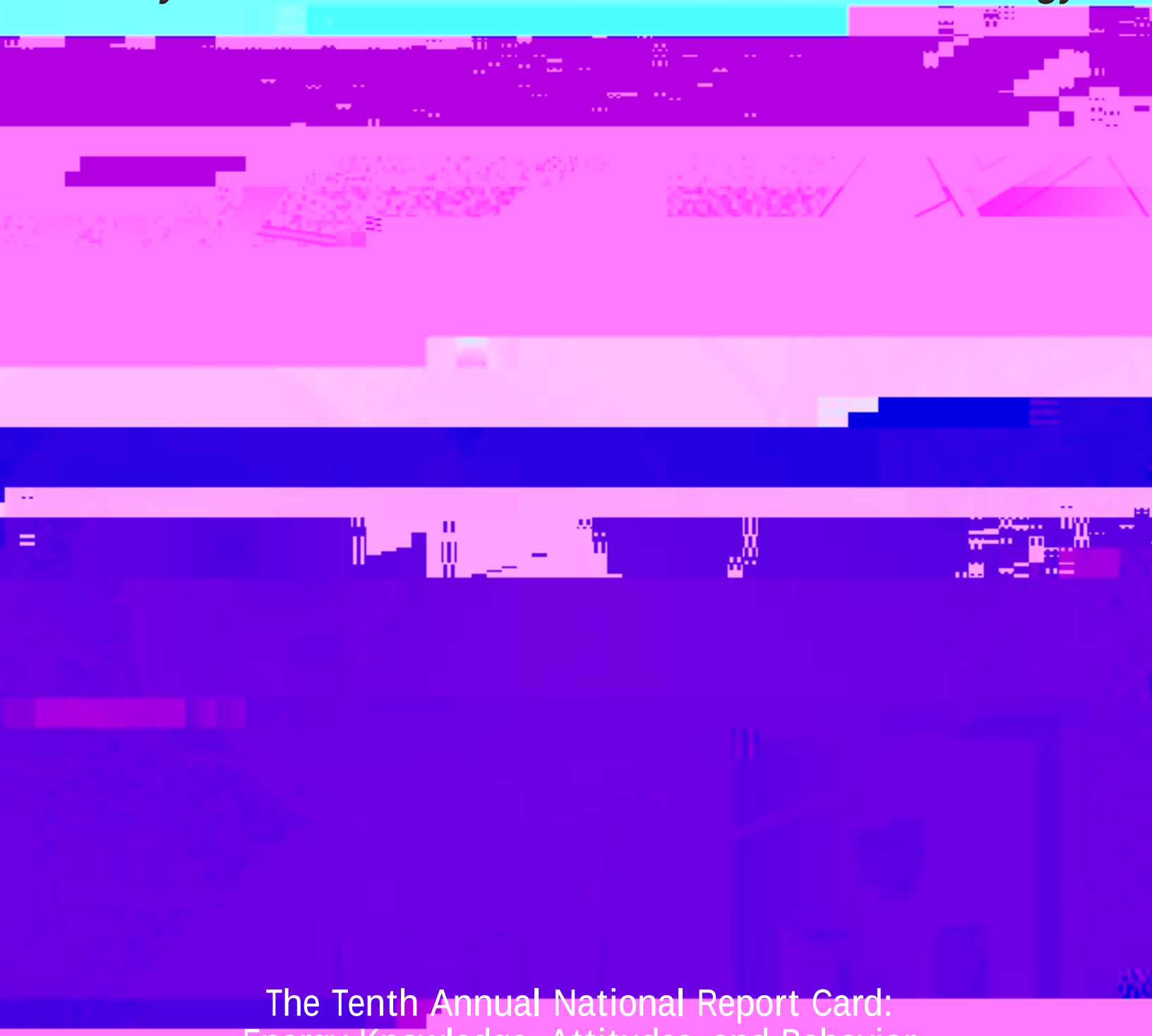
# Americans' Low "Energy IQ:" A Risk to Our Energy Future

## *Why America Needs a Refresher Course on Energy*



The Tenth Annual National Report Card:
Energy Knowledge, Attitudes, and Behavior

August 2002
The National Environmental Education & Training Foundation • Roper ASW

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2002

The National Environmental Education & Training Foundation

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## About the National Environmental Education & Training Foundation

Chartered by Congress in 1990, the Foundation, a private, non-profit organization, is a national leader in the development of new policies, grant-making approaches, and programs to advance environmental education in America. We link environmental education (EE) to society's core goals including: improved health, better education, more environmentally responsible business, and greater volunteerism and personal responsibility. We also focus on the needs of under-resourced segments of American society.

Our main programs goals are:

- EE in our Schools
- EE for the Adult Public
- EE for Health Care Professionals
- EE for Businesses.

As a private organization, we build partnerships between government and the private and NGO sectors. We also make challenge grants to innovative new programs and recognize outstanding achievement in the field. Our financial support comes from a mix of public agency and private donor contributions and partnerships. The Foundation receives a small appropriation under the National Environmental Education Act, which we leverage into some $15 million in grants and contributed program support – a 20-to-1 return on investment. The Foundation works in partnership with many leading organizations, and is overseen by a combination of leaders in education, business, and the non-governmental and governmental sectors.

## Acknowledgements

We thank RoperASW for its field research and preparation of this report and, in particular, David Lintern, who so ably assessed the data and guided us toward a more insightful presentation of the findings.

To the Reader:

## Introduction

The 2001 National NEETF/Roper Report Card is our tenth study. It has a special focus on energy usage, conservation, and education. It is based on a nationally representative sample of 1,503 Americans, age 18 and older, surveyed by RoperASW in August and September 2001 by telephone. The questions in the survey are aimed at revealing overall public attitudes toward such issues as the role of government in regulating and educating the public on energy usage, how much people are willing to conserve energy as individuals, and the public's basic knowledge of energy issues.

The survey's knowledge questions cover simple topics that the average person would be likely to come across in the news or through consumer information. The questions are in a multiple-choice format with a correct answer, a plausible incorrect answer, and two non-plausible answers. Our findings:

1.

Just 12% of Americans can pass a basic quiz on energy knowledge. Thirty years after the

energy quiz, answering at least 9 of the 10 questions correctly. This gap between real and imagined knowledge could stand in the way of Americans' realizing a more energy efficient future.

3.

storage site in Nevada at Yucca Mountain. Half of the public is unaware of this issue while 47% know that fuel rods are stored and monitored at the various plant sites.

**4.**

Americans support energy education. They want it to begin in childhood and to extend into adulthood. The vast majority of the public agrees not only that energy conservation should be taught in our schools (90%), but also that government agencies (88%) and private companies (84%) need to place greater emphasis on educating adults to solve energy problems. Even a majority of those who say there are already too many environmental laws believe that more energy education is needed.

**5.**

Some 91% of Americans agree that energy conservation will play an increasingly important role in the nation's economic future. Most scientific and economic experts say that a sound economic future is tied to our effective management of energy needs. The public instinctively has the same perception. Similarly, last year, nine in ten Americans felt that the condition of the environment will play an increasingly important role in the nation's economic future. Clearly, Americans see energy as a factor that needs to be in synergy with the economy.

**6.**

8.

3%

Since 1997, the NEETF/Roper National Report Cards have attempted to assess adult Americans' knowledge of environmental issues and problems. In line with recent headlines and environmental debates, this study focuses on energy issues and problems. In the survey, adult Americans are first asked to describe their own level of knowledge of energy issues and problems. Then they are presented with ten simple questions to determine their actual knowledge of energy and the nation's use of it.

The knowledge questions were developed to find out if adult Americans have a wigl11.9(wlnr.ge es, t9(e)-0.1yes and pr)5.8(o– he questies and pr)ms. dete9f19irgs antudy69.7(modess and p

In an effort to gauge the reliability of Americans' assessment of their knowledge of energy issues and problems, the 2001 NEETF/Roper Survey included a basic test of energy knowledge. The underlying goal of the study is to examine general knowledge, not technical or scientific knowledge. Some help for the questions came through the Energy Information Administration of the U.S. Department of Energy, which developed several of the questions for a quiz posted on the Kids Page of its website.[2] Each of the ten knowledge questions is multiple-choice (to make it easier), and each has a correct answer, a plausible but incorrect choice, and two implausible choices.

The ten energy quiz questions in the survey cover a range of high-profile issues which the public could have seen in the media or in consumer information in the last year or two, especially in light of the energy emergency in California in 2001. As with past studies, which focused on environmental issues and problems, the 2001 NEETF/Roper Survey uncovered some disturbing knowledge gaps about energy issues.

To begin with, only one in eight adult Americans (or 12%) has a passing understanding (grade of A, B, or C) of basic energy information. This compares to about one-third who have a passing understanding of general environmental issues. This lower level of performance on energy issues as compared to overall environmental issues may be surprising to those who lived through the oil embargoes and energy shortages of the 1970s. It is quite clear, however, that Americans have much to learn about the basics of energy production, consumption, and conservation.

This survey raises important questions for America's leaders. Scientists and policy leaders obviously should know a great deal about energy issues and management. But what about other leaders in business, civic organizations, and local government? How much more knowledge about energy issues are they than the general public? To what extent do such leaders regularly make major energy usage decisions on behalf of the communities they serve?

(12%)

[2] United States Department of Energy, Energy Information Administration, http://www.eia.doe.gov/kids/energyquiz.html, 2000.

% Response

1. How is most electricity in the United States generated? Is it…
a. By burning oil, coal, and wood ..... 36
b. With nuclear power ..... 11
c. Through solar energy, or ..... 2
d. At hydro electric power plants? ..... 36
Don't know ..... 16

2. Which of the following uses the most energy in the average home? Is it…
a. Lighting rooms ..... 6
b. Heating water ..... 11
c. Heating and cooling rooms, or ..... 66
d. Refrigerating food? ..... 12
Don't know ..... 5

3. Which of the following sectors of the U.S. economy consumes the greatest percentage of the nation's petroleum? Is it…
a. The residential sector ..... 9
b. The commercial sector ..... 10
c. The transportation sector, or ..... 33
d. The industrial sector? ..... 28
Don't know ..... 21

4. Which fuel is used to generate the most energy in the U.S. each year? Is it. . .
a. Petroleum ..... 36
b. Coal ..... 13
c. Natural gas, or ..... 27
d. Nuclear? ..... 6
Don't know ..... 18

5. Though the U.S. has only four percent of the world's population, what percentage of the world's energy does it consume? Is it…
a. 5 percent ..... 2
b. 15 percent ..... 8
c. 20 percent, or ..... 19
d. 25 percent? ..... 50
Don't know ..... 21

6. In the last ten years, which of the following industries in the U.S. economy has increased its energy demands the most? Is it…
a. The food industry ....3
b. The transportation industry ....38
c. The computer and technology industry, or ....39
d. The health care industry? ....6
Don't know....14

7. In the past ten years, has the average miles per gallon of gasoline used by vehicles in the U.S. …
a. Increased ....62
b. Remained the same ....12
c. Gone down, or....17
d. Not been tracked? ....3
Don't know....5

8. Scientists have not determined the best solution for disposing of nuclear waste. In the U.S. , what do we do with it now? Do we…
a. Use it as nuclear fuel ....8
b. Sell it to other countries....3
c. Dispose of it in landfills, or....18
d. Store and monitor the waste? ....47
Don't know....24

9. The U.S. currently uses oil from both domestic and foreign sources. What percentage of the oil is imported? Is it…
a. 10 percent....2
b. 20 percent....6
c. 35 percent, or....24
d. 55 percent?....52
Don't know....17

10. Scientists say the fastest and most cost-effective way to address our energy needs is to. . .
a. Develop all possible domestic sources of oil and gas....16
b. Build nuclear power plants....14
c. Develop more hydroelectric power plants, or ....13
d. Promote more energy conservation? ....39
Don't know....18

Correct answers: 1a, 2c, 3c, 4a, 5d, 6b, 7c, 8d, 9d, 10d

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| A (9 10 c ec ) | Pa88 | 1 | 1 | <0.5 |
| B (8 c ec ) | Pa88 | 3 | 4 | 1 |
| C (7 c ec ) | Pa88 | 8 | 10 | 5 |
| D (6 c ec ) | Fail | 13 | 16 | 10 |
| F (5 fe e ) | Fail | 76 | 68 | 84 |

Thirty-two years after the first Earth Day and during a summer in which energy problems were covered extensively by the media, only 12% of American adults could pass a simple test of knowledge about the sources and consumption of energy. In fact, just one in 100 adults receives a grade of "A" on the quiz, answering at least 9 of the 10 questions correctly. These quiz results are far lower than the public's own estimation of its knowledge of energy issues and problems (75% report they know at least a fair amount, with 12% of these saying they know a lot). This gap between real and imagined knowledge could stand in the way of Americans' realizing a more energy-efficient future.

### 2 Pe ce tage A 8 e i g K ledge Q e8 i 8C ec t

| | 2001 |
|---|---|
| S ce f m 8te e g 8age i a e age h me | 66 |
| Pe ce tage f il im v ted f m f eig 8 ce8 | 52 |
| Pe ce tage f ld'8e e g c 8 med b U.S. | 50 |
| Di8 8al f clea a8te i the U.S. | 47 |
| Fa8te8ta d m 8tc 8t-effec i e a t add e88e e g eed8 | 39 |
| U.S. i d 8t i ceae ed e e g dema d8 the m 8ti v a8t te ea8 | 38 |
| F el 8ed t ge e a te m 8te e g i the U.S. | 36 |
| H m 8telec tici t i the U.S. i8ge e a ted | 36 |
| Sec t f U.S. ec m c 8 mi g g ea te8t e ce tage f e t le m | 33 |
| A e age mile8 e gall 8ed b ehicle8i a8t te ea8 | 17 |
| A e age mbe f c ec ta 8 e8 | 4.1 |

Figure 2 lists the subject of each question and the percentage of Americans correctly answering that question.

Thus, while a number of Americans are knowledgeable about one or two energy topics, very few (the 1% who achieve an 'A' grade) have broad energy knowledge. Overall, the public correctly answers an average of just 4.1 of the 10 questions.

Although Americans generally performed poorly on the quiz and failed to attain their self-reported level of knowledge, those who rated themselves as having a lot of knowledge about energy do in fact have more knowledge of the topic overall (5.0 correct answers) than those who say they know a fair amount

environmental problems may lack the knowledge to support these opinions. Only when knowledge and attitudes coincide will the public make favorable energy and environmental choices.

## [illegible]

Like knowledge of the environment, knowledge of energy issues has an unusual relationship with age. Americans age 35–44 and 45–64 are the most knowledgeable about energy issues, followed closely by those age 18–34. Each of these groups correctly answers significantly more questions than those age 65 and older. This pattern may be a reflection of overall interest in science and the environment (other Roper data show that interest in both topics peaks among middle-aged Americans) as well as interest in technology (for which interest decreases with age). [3]

The issues with the largest differences between the various age groups are: the fastest and most cost-effective way to address the nation's energy needs; the disposal of nuclear waste in the United States today; and the U.S. industry that increased its energy demands the

The issues with the largest differences among the four regions of the nation are: the source of most energy usage in the average home (accurate knowledge highest in the South, lowest in the Northeast); how most electricity in the U.S. is generated (accurate knowledge highest in the Northeast, lowest in the South); and the percentage of world's energy consumed by U.S. (accurate knowledge highest in the Midwest, lowest in the South). The only issue for which Westerners perform better than those in other regions concerns the U.S. industry that increased its energy demands the most in the past ten years (the computer and technology industry, generally associated with California and the West).

Clearly, energy knowledge is deficient regardless of region. While one part of the nation may perform better than another on a specific question, Americans overall have much to learn about energy production, consumption, and conservation.

. ,! .!| .! ,!

From a broader perspective, the results present a mixed bag of Americans' knowledge of energy issues and problems. The ten quiz questions can be grouped into five broad topic areas: Energy Close to Home; Energy Consumption and United States Industry; Energy Production in the United States; United States and World Energy; and Addressing Future Energy Needs.

.! ,! , ..! .! .!

Americans fare both best and worst on the two questions that likely hit the public closest to home. It is encouraging that 66% of the public know that the prime consumer of energy in an average home is the process of heating and cooling rooms. At the same time, despite widespread coverage of the nation's transition from a coupe- and sedan-led automobile market to one dominated by low miles-per-gallon sport utility vehicles (SUVs), just 17% of the public correctly know that the average miles per gallon of gas used by vehicles has decreased in the past ten years. Shifts in Americans' driving habits (higher speed limits, longer commutes to work) also work to lower the average miles per gallon.

Considered together, these two questions may indicate that people are more likely to think about the costs that heating and cooling rooms contribute to their monthly energy bills than they are to think about the energy costs of a one-time purchase of a low-miles-per-gallon vehicle. In other words, auto-related energy conservation should be revisited and explained to the American public. In fact, other Roper data show that, when people are asked the importance of automobile characteristics, gas economy (tied with cost of ownership) falls behind safety (the most important attribute), freedom from repairs, quality of workmanship, and ease of getting the vehicle repaired. Having low-pollution vehicles is even less important.

## [illegible]

Two of the quiz questions focused on the relationship between energy consumption and U.S. industry. In both cases, fewer than four Americans in ten can answer correctly. Relatively few Americans identify the transportaton industry as the top energy user. Just 38% correctly cite it as the U.S. industry that increased its energy demands the most in the past ten years, although nearly as many (38%) incorrectly cite the transportation industry. Likewise, just 33% correctly identify the transportation sector as the sector of the U.S. economy that consumes the greatest percentage of petroleum, while nearly as many (28%) incorrectly cite the industrial sector. In fact, nearly half of all Americans (46%) incorrectly answer each of these questions.

It is unclear whether Americans identify the vehicles they drive as part of the "transportation" industry/sector (and the energy the sector consumes) or whether they differentiate cars from airplanes, trains, and cargo trucks. This is not merely a classification issue – it also goes to the heart of the public's understanding of the impact of personal vehicles on energy use and environmental quality.

## [illegible]

Another two quiz questions focused on energy production in the United States. Once again, Americans fare poorly, with just 36% correctly saying that petroleum is the fuel used to generate the most energy in the U.S. More than one-fourth, 27%, incorrectly identify natural gas as the prime energy producer in the U.S. When asked to focus specifically on electricity, just 36% correctly identify the burning of oil, coal, and wood as the source of most electricity generated in the U.S. Just as many (36%), however, incorrectly identify hydropower as the nation's chief generator of electricity.

For both questions, correct responses are highest in the Northeast; Westerners are the most likely to incorrectly state that hydropower is the nation's greatest generator of electricity. Hydropower is more prevalent in the West than elsewhere, but only in parts of the Northwestern corner of the nation is hydropower the leading source of electricity generation.

## [illegible]

As one of the world's leading economies, and with the rise of globalization and the many ties between nations, it is not surprising that the U.S. needs to look beyond its borders for energy supplies. This remains true despite the nation's decidedly negative experience with dependency on foreign oil in the 1970s. Currently, more than half of the nation's oil is from foreign sources, a figure correctly identified by 52% of Americans. Not only does the nation import energy, but it consumes fully one-fourth of the total production of energy worldwide, even though the U.S. has only 4% of the world's population — a fact correctly understood by exactly 50% of the American public.

Americans appear to approve of these circumstances, as foreign oil helps keep the cost of gasoline and home heating oil low. Whenever gas prices do rise unexpectedly, Americans demand that the U.S. government find a way to keep the supply flowing and keep prices low, even if the nation needs to use its international muscle to control the wholesale cost of the energy it imports. Whether the American public understands the impact of importing and using a fourth of the world's energy cannot be determined from the data, though other Roper data show relatively little concern among Americans about the possibility of an energy shortage.[5] Still, the topic warrants further research and the dissemination of messages encouraging Americans to conserve energy.

The final two quiz questions are more long-term in nature. First, though nuclear power is currently a source of energy for the U.S., scientists have not decided on the best solution for disposing of nuclear waste. This is a decidedly long-term problem as nuclear waste can remain radioactive for thousands of years. Among the American public, 47% correctly cite storing and monitoring the waste as the current solution to this energy problem. A lack of understanding of this issue will, however, make public debates over the proposal and implications of placing spent nuclear fuel at Yucca Mountain in Nevada somewhat irrelevant to the general public.

A final question addressing future energy needs found that relatively few Americans realize that the fastest and most cost-effective way to address energy needs is to also address the long-term need for energy conservation. Unfortunately, just 39% of Americans correctly note that conservation is the fastest way to address energy needs. More Americans advocate developing all possible sources of oil and gas, building nuclear power plants, or developing more hydroelectric power plants (a combined 43%) than see energy conservation as a significant solution. This might explain why some people see the exploration and development of oil resources beneath the Arctic National Wildlife Refuge as a solution to short-term energy problems such as rising gas prices. Americans clearly have much to learn about energy production, consumption, and conservation.

As evidenced by Americans' performance on the quiz, energy is a complex and often confusing topic for which the public needs fuller information and explanation. On an encouraging note, many Americans want assistance from the government and corporate America to help solve energy problems, although at the same time many expect that technology will somehow help solve energy problems.

While past NEETF/Roper surveys on environmental issues posed a decision between the environment and the economy, this year's study asks about energy conservation and economic development. The findings show that more Americans see a synergy between energy conservation and economic development than see a synergy between environmental protection and economic development.

Other research by RoperASW in 2001 found that 21% of Americans were personally concerned about fuel and energy shortages.[6]

Only a few subgroups differ significantly from the national average. Women (94% agree, 66% strongly) are more likely than men (87% agree, 58% strongly) to say that school-children should be taught about energy conservation. N

## 4. G e me tS t f E i me tal a d E eg Ed ca f

P g ams

G e me tage cies eed t
lace m e em has
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G e me tage cies sh ld
te i me tal
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*Question wording:*

*Please indicate for each of the following statements whether you strongly agree, mostly agree, mostly disagree, or strongly disagree*

## 3.

The public strongly agrees that private companies have a role in helping to solve energy and environmental problems. In 2000, 82% of Americans agreed that "Private companies should train their employees to solve environmental problems" (Figure 5). In a revised question in 2001, 84% of Americans also agreed that private companies need to place more emphasis on educating the public to help solve energy problems. Clearly, Americans see a beefed-up role for corporate America in educating adults about energy issues.

Even among those who think current environmental regulations go too far, 72% agree that private companies need to place more emphasis on training their employees to solve energy problems. (The comparable figures for those who say current laws do not go far enough is 89%, and for those who think current laws strike the right balance, 83%. )

It is encouraging that private sector emphasis on energy education receives strong support, because the 1999 NEETF/Roper Survey found that Americans were less likely to trust private businesses to solve environmental problems than other groups or organizations. By training employees to address energy or environmental concerns, private businesses may be able to improve their standing in the eyes of the public. Americans want energy and

preferring conservation over development (69%). Americans who say that current laws to protect the environment go too far (76%) or strike the right balance (77%) are more likely to see technology as the answer to energy problems than those who say that current laws do not go far enough (69%).

Still, no more than one-quarter of any subgroup disagree with the statement, suggesting widespread hope for the ability of technology to solve energy problems.

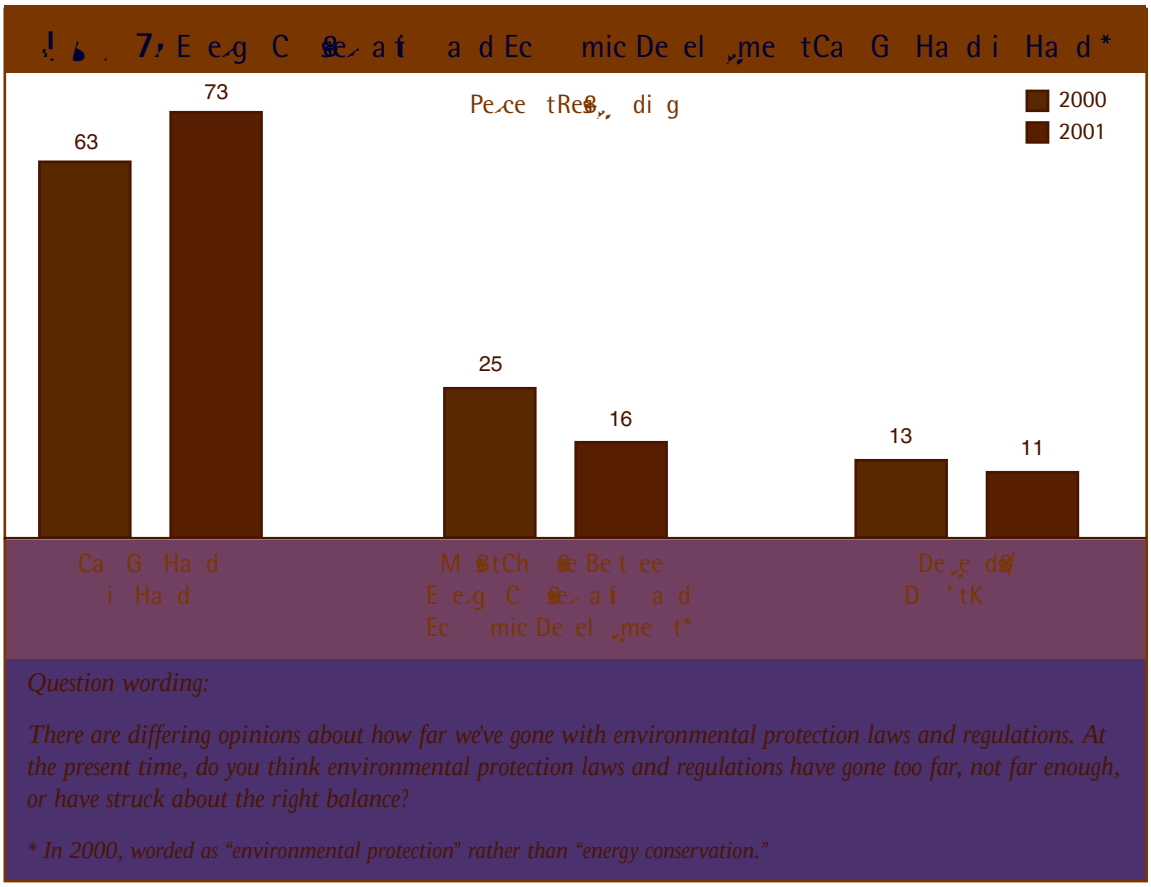
A majority of Americans believe that energy conservation and economic development can go hand in hand. In the 2001 NEETF/Roper Survey, 73% agree that conserving energy and developing the economy can be addressed at the same time, rather than seeing a need to choose one over the other (16%) (Figure 7).

The "hand-in-hand" position is considerably higher than in 2000, when the question was framed in terms of "environmental protection and economic development" rather than "energy conservation and economic development." This again suggests that the American public differentiates between environmental issues and energy issues, with energy (oil, gas, electricity) viewed as more entwined with the economy than the environment (animals, water, natural areas).

Further, it should be noted that interviewing for this survey occurred in late summer of 2001, not long after the energy crisis in California, which brought about considerable media coverage of energy issues nationwide. This focus on energy may have contributed to public perceptions of the linkage between energy and the economy, with the threat of rolling blackouts and darkened businesses demonstrating the economic impact of an energy shortage.

As in 2000, these attitudes are fairly consistent among gender, age, and regional subgroups, but vary by education level and income. In 2001, 69% of Americans with a high school education or less agree with the hand-in-hand option, compared to 75% of those with some college education and 80% of those with a college degree. There is a similar difference between lower income (under $20,000: 67%) and higher income ($50,000$^{+}$: 77%) households.

In contrast to last year's study, now that the reference is to energy rather than the environment, parents are more likely than non-parents to say that energy conservation and economic development can go hand-in-hand. Whether this is because parents perceive fewer "legacy issues" relating to energy usage than to environmental quality is not explored in the survey.




*Question wording:*

*There are differing opinions about how far we've gone with environmental protection laws and regulations. At the present time, do you think environmental protection laws and regulations have gone too far, not far enough, or have struck about the right balance?*

** In 2000, worded as "environmental protection" rather than "energy conservation."*

When Americans are asked to choose between energy conservation and economic development, six in ten (60%) say they would choose energy conservation, while 27% would choose the economy (Figure 8). Last year, on a similar question referring to environmental protection rather than energy conservation, the public favored environmental protection by a margin of 4 to 1. This finding may have several reasons behind it; one possibility is that Americans perceive something unique and irreplaceable about the environment that they do not perceive about energy.

Demographically, women (66%) are more likely than men (54%) to favor energy conservation. This is similar to the pattern in 2000, when the question placed environmental protection against economic development.

Differences by age are less consistent in 2001 than in 2000. Last year, the youngest adult Americans (age 18–34) were the most likely to select environmental protection over economic development, an attitude that decreased with age. However, when the reference is to energy conservation and economic development, attitudes are similar among all ages under 65. Two-thirds (65%) of those age 35–44 select energy conservation over the economy, as do 61% of those 45–64 and 60% of those 18–34. By contrast, only 51% of

tion will play an increasingly large role in the nation's economic future. Even among those who believe economic development is more important than energy conservation, the vast majority agree that energy conservation is a critical element in the economy of the future.

Interestingly, differences across age and education subgroups in response to the environmental statement in 2000 vanish with the energy conservation statement in 2001, perhaps indicating that Americans are more of like mind with regard to energy than with respect to the environment.

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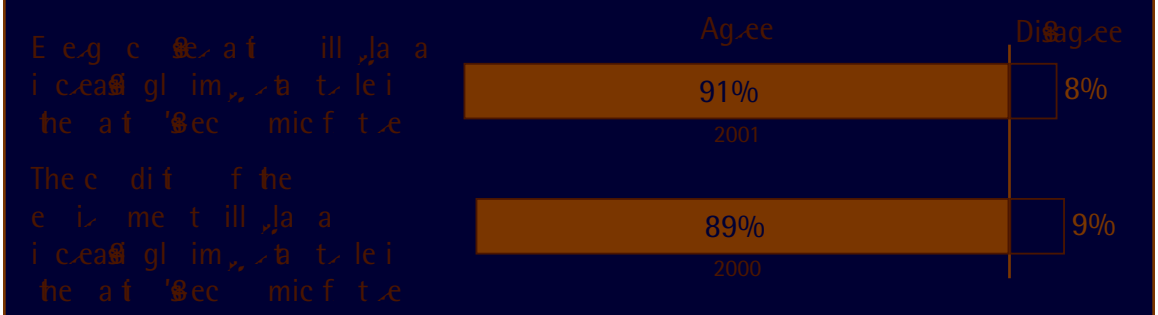



*Question wording:*

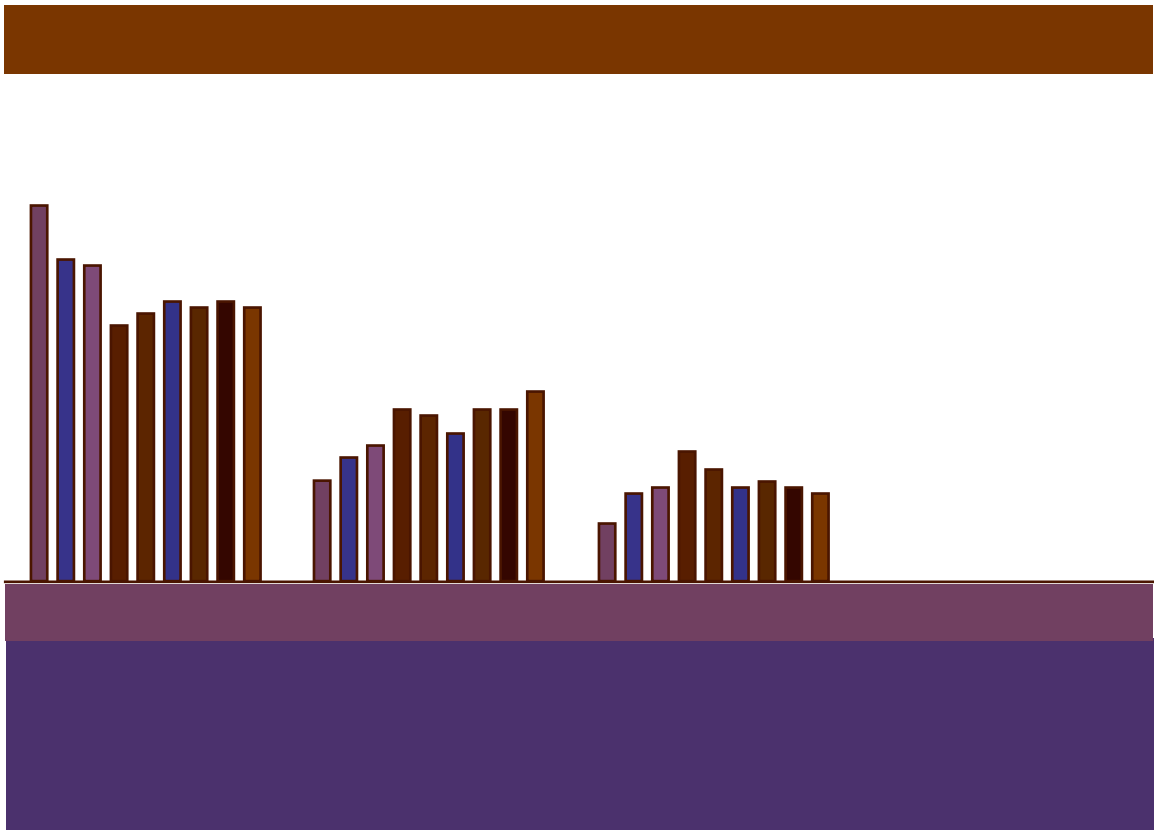
*Please indicate for each of the following statements whether you strongly agree, mostly agree, mostly disagree, or strongly disagree.*

** Prior to 2001, worded as "condition of the environment" rather than "energy conservation. "*

### . ,! ! ,! , ! , ! ,! ! , ,

Over the years, the NEETF/Roper surveys have repeatedly shown that most Americans believe that government – federal, state, and local – should have some responsibility for protecting the environment. Other Roper data consistently show that the public thinks there is insufficient government regulation to protect the quality of the nation's water and the quality of the nation's air.[7] Likewise, the 2001 NEETF/Roper Survey finds that more Americans believe that government regulation of the environment has "not gone far enough" (44%) than hold the view that current laws "strike about the right balance" (30%) or "go too far" (21%) (See Figure 10). However, for the first time in five years, the proportion of Americans who say that current regulations go too far has notably increased, with the other two positions decreasing slightly. Whether this is a blip or a trend remains to be seen.

[7] Roper Starch Worldwide, Roper Reports #00-7, November 2000. RoperASW's Green Gauge 2001 indicates that 72% agree completely or mostly with the phrase, "We need to have stronger enforcement of current environmental regulations." RoperASW, Green Gauge 2001, August 2001.



**!b. 11, Attitdes T a,d E i, me tal La &b Ge de,a d Age**

| E tf C ,e t E i, me tal La & | J l. | l.. | l, | 18-34 | 35-44 | 45-64 | 65+ |
|---|---|---|---|---|---|---|---|
| | % | % | % | % | % | % | % |
| G e t fa, | 21 | 25 | 17 | 17 | 18 | 24 | 27 |
| N tfa, e gh | 44 | 39 | 48 | 47 | 48 | 43 | 35 |
| S t, ck ab t the ,igh t bala ce | 30 | 32 | 27 | 31 | 30 | 29 | 28 |
| D 'tK | 6 | 4 | 8 | 6 | 4 | 5 | 11 |

Figure 12 shows a decline since 1999 in the opinion that current laws do not go far enough. The decline is led by males and those under the age of 35, whereas most other groups have remained constant. This decrease among those under the age of 35 is especially surprising as they have long been the most supportive of environmental regulations.

There are also differences by community type: support for the "not gone far enough" position is higher among those living in suburban (48%) or urban (46%) areas and lower among those residing in rural areas (39%). This difference may stem from a variety of

**!b. 12, T,e d Da ta: E i, me tal La &'D N tG Fa, E gh', b Ge de,a d Age**

| | J l. | l.. | l, | 18-34 | 35-44 | 45-64 | 65+ |
|---|---|---|---|---|---|---|---|
| | % | % | % | % | % | % | % |
| 2001 | 44 | 39 | 48 | 47 | 48 | 43 | 35 |
| 2000 | 46 | 42 | 49 | 51 | 45 | 45 | 38 |
| 1999 | 47 | 45 | 49 | 56 | 47 | 44 | 36 |
| 1993 | 54 | 49 | 58 | 62 | 60 | 45 | 39 |
| 1992 | 63 | 59 | 67 | 69 | 68 | 54 | 57 |
| Cha ge i 'D N tG Fa, E gh' & ce 1992 | -19 | -20 | -19 | -22 | -20 | -11 | -22 |
| Cha ge i 'D N tG Fa, E gh' & ce 1999 | -3 | -6 | -1 | -9 | +1 | -1 | -1 |

factors, including different relationships to the natural environment of urban/suburban vs. rural residents, different levels of ambient pollution encountered on a daily basis, and different concerns over the effects of regulation on individual or community livelihoods.

Figure 13 shows public attitudes towards current regulation of five specific environmental and energy issues. Americans rate certain areas of environmental regulation of higher importance than environmental regulation in general; once again, water quality and air quality continue to be given highest priority by the American public.[8] Thus, while 44% of Americans believe that environmental laws overall have not gone far enough, 69% say that environmental laws and regulations to prevent water pollution have not gone far enough, and 63% say the same about laws to prevent air pollution (Figure 13). Nearly as many, 60%, believe that current laws for the conservation of energy do not go far enough, the first time this question was asked as part of the NEETF/Roper Survey. Clearly the public supports further regulation to help the nation conserve energy. [9]

For the remaining two issues – protection of wetlands and protection of endangered species – fewer than half the population believes that current laws do not go far enough.

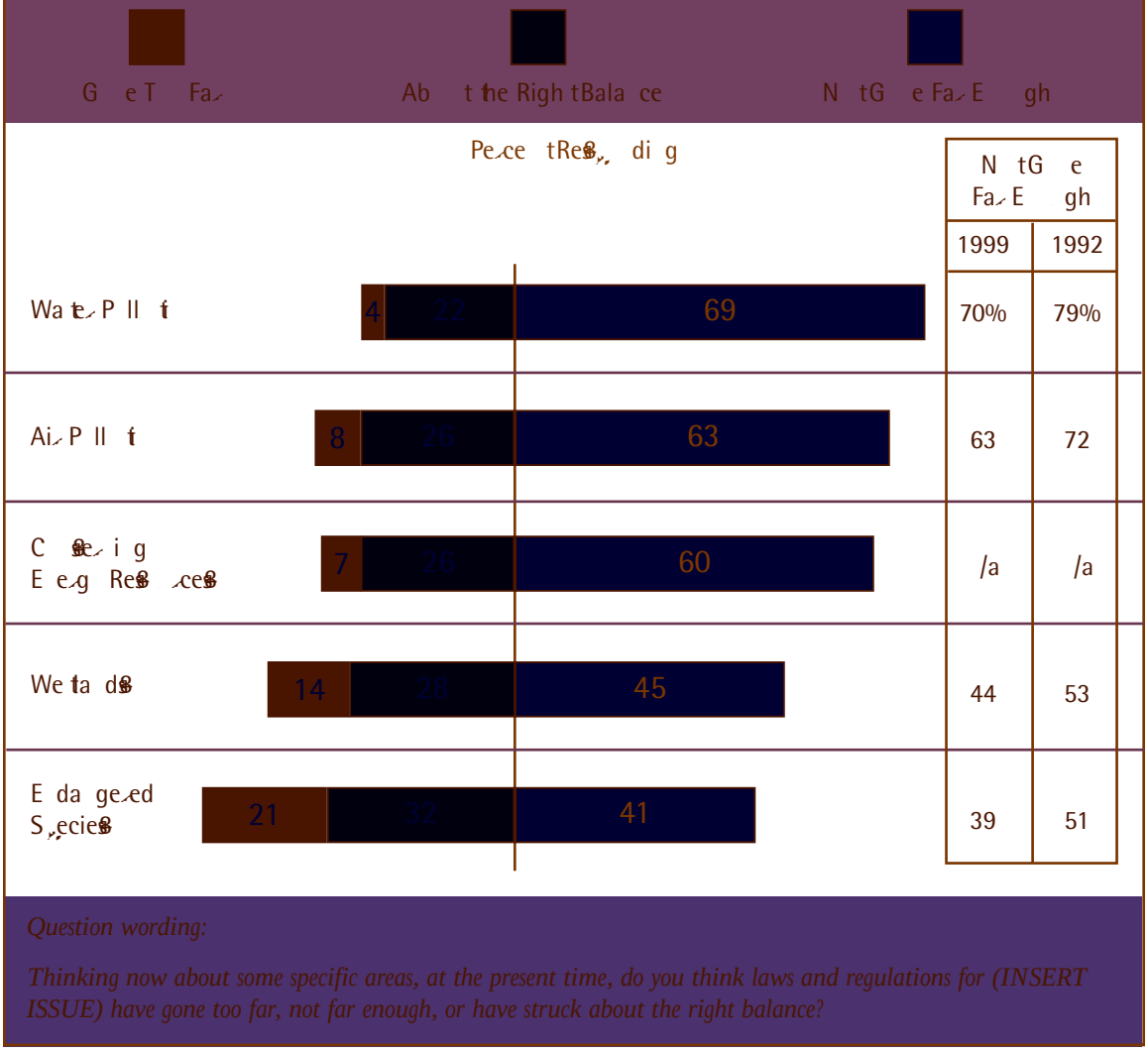
As might be expected, Americans who believe that environmental laws overall go too far feel the same way about laws addressing the five specific issues. This pattern is most evident for the protection of endangered species (58% vs. national average of 21%) and the protection of wetlands (42% vs. national average of 14%), but also for air pollution (15 percentage points above the national average of 8%), conserving energy resources (13 points above the national average of 7%), and water pollution (8 points above the national average of 4%).

Conversely, those who feel that current laws have not gone far enough are significantly more likely (17 percentage points, on average) to find that laws addressing each of the five issues are insufficient.

Within gender, age, and community subgroups, opinions differ as to the efficacy of current laws for specific environmental issues. Following are some key patterns.

[8]

## !  13, C e tReg la t  f S ,ecific E i me tal a d E e,g l88 e88




| | N tG e Fa E gh | |
|---|---|---|
| | 1999 | 1992 |
| Wa te P ll t | 70% | 79% |
| Ai P ll t | 63 | 72 |
| C 8e i g E e,g Re8 ces8 | /a | /a |
| We ta d8 | 44 | 53 |
| E da ge ed S ,ecie8 | 39 | 51 |

*Question wording:*

*Thinking now about some specific areas, at the present time, do you think laws and regulations for (INSERT ISSUE) have gone too far, not far enough, or have struck about the right balance?*

. . ! . l . ! . . ! ! . ! . ! l . . l !!

Gender: Across the board on specific issues, women choose the "not gone far enough" option more often than men (73% vs. 66% for water; 67% vs. 59% for air; 62% vs. 57% for energy conservation; 47% to 42% for wetlands; 44% vs. 38% for endangered species). More men than women say regulations already go too far for all five issues, most notably the protection of wetland areas (men +9 percentage points) and the protection of endangered species (men +7 percentage points). The two genders are statistically similar in the number who believe that current laws for each of the five issues strike the right balance.

Age: In past years, Americans age 18–34 were among the most likely to say that current laws for the five specific environmental issues do not go far enough. It may be that

younger Americans are taking their attitudes with them as they age: Americans age 35–44 are now the most likely to say that laws for protecting air, wetlands, endangered species, and energy resources do not go far enough.

The 18–34 cohort is now at the national average in feeling that current laws are insufficient, while those 65 and over continue to be the least likely to feel that way on each of the five issues; in fact, for endangered species and wetlands, the oldest cohort is much more likely to feel that current laws already go too far. As the younger, pro-environment American population ages, the do-not-go-far-enough and the strike-the-right-balance positions may very well grow in popularity, perhaps changing the outlook for future environmental laws and regulations.

Community Type: In previous years, urban residents were especially likely to state that current laws for all five issues do not go far enough, while rural residents were particularly likely to feel that regulations for protecting endangered species and wetlands have already gone too far. In 2001, the difference between urban and suburban residents seems to have dwindled, although rural Americans remain significantly less likely than others to say that current laws to protect endangered species (urban, 47%; suburban, 44%; rural: 35%), and wetland areas (urban: 49%; suburban: 46%; rural: 41%) do not go far enough. These attitudes may relate to the relative impact that environmental regulations have on the jobs and leisure activities of rural and urban Americans, such as jobs in logging or the use of federal lands for recreational activities.

Support for additional regulation on key environmental issues varies not only by demographics, but also within each issue over time.

Water Pollution: Since the first NEETF/Roper survey in 1992, support for the position that current water pollution laws and regulations "do not go far enough" has declined 10 percentage points overall, and even more dramatically among three subgroups: Americans age 65 and over (down 18 percentage points); males (down 12 points); and residents of Western states (down 14 points).

However, as Figure 14 also shows, for some demographic groups the slide appears to have been halted, with slight increases since last year among those age 65 and over and those living in the Northeast.

Air Pollution: A similar trend is occurring with regard to air pollution regulation. Most Americans agree that current regulations to fight air pollution do not go far enough, but support for that position has fallen nine points since 1992 (although it has held fairly steady since 1996). As Figure 15 shows, the decrease since 1992 is most pronounced among four subgroups: Americans age 65+ (down 14 percentage points), those age 18–34 (down 12 percentage points), those living in the West (down 12 points), and those living in the Midwest (down 11 points).

As with water pollution, however, the slide appears to have been halted for some demographic groups, notably among men, Americans age 35–44, and residents of the Northeast.

Somewhat surprisingly, Americans with less than a college degree education are more apt than those with a degree to call for further air pollution regulation. College graduates, on the other hand, are the educational subgroup most likely to feel that current air pollution laws strike the right balance.

Conserving Energy Resources: Public support for government regulation of energy conservation (60%) lies somewhere between support for air and water quality (63-69%) and protection of endangered species and wetlands (41-45%). As Figure 16 shows, significant differences appear for several subgroups: Americans 35–44 and 45–54 are the most likely to say that laws to conserve energy resources do not go far enough; those residing in the Northeast or Midwest are more likely than those in the South or West to hold this view.

In addition, those Americans with a college degree (65%) are more likely than those with at most a high school education (57%) to state that energy conservation regulations do

not go far enough. Those with no more than a high school education (29%) are more likely than those with a college degree (21%) to say that current laws to conserve energy strike the right balance. This runs somewhat against earlier findings in which regardless of their education, most Americans believe that energy conservation would play a critical role in the nation's economic future and in which the majority of Americans opt for energy conservation over economic development. Moreover, in a separate study in 2001, RoperASW found that 61% of Americans would support legislation phasing out electricity derived from nonrenewable sources and using more renewable sources such as wind and solar.

The 2001 NEETF/Roper Survey focuses on some of the daily activities the public can engage in to conserve energy and benefit the environment. Analysis of the survey data demonstrates how these actions relate in part to knowledge about energy and the environment.

Though they may not realize it, many Americans perform activities each day that benefit the environment in some way. Asked how often they perform each of eight activities that benefit the environment, a majority of Americans say they perform four "frequently."

As in past years, the simplest behavior tops the list: 89% report that they frequently turn off lights and electrical appliances when not in use. Whether people consciously do this to save energy or to save money on the electric bill is less important than that they are performing this activity, which protects the environment by reducing the need for power generation at electric plants, many of which use oil or coal to produce energy. RoperASW's Green Gauge 2001 data indicate that saving electricity at home has the highest rating of activities done regularly, with 65% support, up eight percentage points since 2000.[11]

Two out of three Americans (65%) report that they lower the thermostat in the winter to conserve energy. Again, both saving energy and saving money are probably motivating forces, but either way, the nation's environment and energy independence benefit.

Six in ten Americans (60%) say they frequently recycle newspapers, cans, and glass. A large part of this may be because local laws and regulations mandate recycling. In fact, the 1999 NEETF/Roper Survey showed that few Americans know that newspapers and paperboard are the chief sources of landfill material. A slim majority of Americans (51%) say they reduce the use of air conditioning in the summer to conserve energy. Importantly, then, actions to

One of the surprising trends in the results for energy conservation and environmental activities relates to age differences (Figure 21). For five of the seven activities, the likelihood of performing the activity increases with age. This is most evident for accelerating slowly to conserve gasoline when driving (36 percentage points higher among those age 65+ than among those age 18–34), purchasing lamps and appliances that are energy-efficient (27 percentage points higher among those age 65+ than among those age 18–34), and recycling things such as newspapers, cans, and glass (23 percentage points higher among those age 65+ than among those age 18–34). Only the frequent use of alternative sources of transportation is higher among those age 18–34 than among older Americans.

This pattern goes against earlier data on attitudes toward the relationship between energy conservation and economic development and on opinions of current environmental laws, in which younger Americans tend to give higher, more environment-friendly ratings than older Americans. However, some of these differences may reflect temperament as well as levels of home ownership. [12] For example, homeowners may be more aware of heating and cooling costs and recycling laws than are those who rent an apartment or live with a relative.

As in previous years, actual environmental knowledge, i. e. , the number of correct answers to the energy and environment quiz, correlates with participation in some of the environment-related activities (Figure 22 on page 34). The top three activities, those that are easily done at home or required by law (turning off lights, lowering the thermostat in winter, and recycling newspapers and cans), are each performed more frequently by those who do well on the quiz than by those who do poorly.

However,

Will a “refresher course” in energy conservation help? We think so. Based on California’s experience in 2001, we believe that an assertive nationwide effort to educate Americans on energy management and conservation could quickly reduce average energy consumption by 3%, a number that appears small but is large in its implications.

The California energy emergency in the summer of 2001 taught us that: (1) people can painlessly reduce energy use in the home and business, and (2) public education can actually motivate people to do so. The state “Kill-a-watt” education program helped to bring about a 6% to 12% reduction in energy usage statewide. We suggest that an assertive new nationwide “refresher course” could lead to half or a quarter as much energy reductions – yielding the 3% mentioned above. That modest rate of reduction would mean an average savings of 33 million gallons of petroleum a day (about 12 billion gallons a year) and 114 billion kilowatts of electric power, or enough to power a average-sized state. Such a public education effort could save households and small businesses at least $20 billion a year in energy costs.

Standing in the way of solving problems is Americans' current lack of knowledge about energy and environmental issues. Without more widespread energy literacy, fuel resources will be less well managed in homes, autos, and businesses, and there will be more waste. Importantly, energy illiteracy means continued dependence on imported oil. But with widespread energy literacy we can easily assume an overall reduction in fuel usage. Homes and vehicles will be more efficiently run, and we will cope better with our energy-

Fortunately, as knowledge increases, so too does frequent engagement in a number of energy- and environment-friendly activities, which are linked in many people's minds to the economy; therefore, increasing knowledge of energy and environmental issues is critical to the nation's environmental and economic future.

Americans have much to learn about energy production, consumption, and conservation, and many are ready to do so. It is therefore important to create opportunities for the public to expand its knowledge, leading not only to better-educated adults, but perhaps also to new perspectives and ideas for solving current energy and environmental problems.

Imagine public energy education actually saving $20 billion in annual public expenses and reducing U.S. dependency on foreign oil by 18 million gallons each day. Both these achievements are well within our grasp.

Throughout this report, attention has been given to differences in energy-related and environmental attitudes, knowledge, and behavior among subgroups of American adults. This Appendix focuses on the results for two demographic subgroups, gender and age.

As in past NEETF/Roper surveys, there is a “gender gap” for many issues (Figure 24). For the most part, women express more pro-environment sentiments than men do. For example, although a large majority of both men and women favor energy conservation over the economy if a choice between them must be made, 66% of women favor energy conservation, compared to 54% of men. Whereas 25% of men think environmental regulations in general have gone too far, just 17% of women feel this way. Conversely, significantly more women (48%) than men (39%) say that current regulations should go farther.

When asked about environmental laws and regulations regarding specific issues, women are more likely than men to feel that regulations have not gone far enough. For instance,there is an 8-point difference between women (67%) and men (59%) on whether specific government regulations to fight air pollution should go further. Similarly, 73% of women, compared to 66% of men, feel that the regulation of water pollution needs to go further. The same pattern holds true for protecting endangered species (women are 6 percentage points higher than men). Women and men are closer in their support for energy conservation regulation (62% and 57%) and protection of wetlands (47% and 42%).

Both women and men overwhelmingly agree that energy conservation should be taught in our schools (87% and 94%, respectively). A strong majority of both women and men also agree that government agencies and private companies need to place more emphasis

on educating the public to solve energy problems, though more women than men express this view.

While a majority of both men and women support environmental protection regulations, the pro-environment feelings of American women remain stronger than those of men.

**24 The E g /E i me tal Ge de Ga 2001**

| | Males % | Females % |
|---|---|---|
| Ca g ha di ha d | 73 | 73 |
| M tch e be t ee e g c e a t a d the ec m | 18 | 15 |
| Fa ec mic de el me t | 34 | 22 |
| Fa e g c e a t | 54 | 66 |
| N tg e fa e gh | 39 | 48 |
| St ck the igh tbala ce | 32 | 27 |
| G e t fa | 25 | 17 |
| Wa te ll t | 66 | 73 |
| Ai ll t | 59 | 67 |
| C e i g e g es ces | 57 | 62 |
| We ta ds | 42 | 47 |
| E da ge ed ecies | 38 | 44 |
| Al t/ A fai am t | 77 | 73 |
| O l a li tte / P ac tcall thi g | 23 | 28 |
| | 4.6 | 3.7 |
| St gl /S me ha tAg ee f : | | |
| Tech l g ill fi d a a f l i g e g blems | 76 | 70 |
| E g c e a t i th la a i ceas g im ta t le i ec mic f t e | 88 | 93 |
| P i a te c m a ies eed t lace m e em has ed ca t g the blic t l e e g blems | 78 | 88 |
| G e me tage cies eed t lace m e em has ed ca t g the blic t l e e g blems | 84 | 90 |
| E g c e a t sh ld be ta ght i ch ls | 87 | 94 |

Even though women express stronger pro-environment attitudes than men, these attitudes do not translate into factual knowledge about the energy issues. As in previous years when the quiz focused on the environment, women this year are less knowledgeable than men about energy issues (Figure 25). On 10 quiz questions in 2001, women average 3.7 correct answers, significantly lower than the 4.6 correct answers among men. This is critical to the

extent that knowledge shapes concern and behavior. For example, the more knowledgeable people are about a topic, the less subject they may be to the whims of popular opinion or the less likely to perpetuate environmental misinformation.

**... 25... Re...s... ...es... t E...g Q... i Q... e...f ...b Ge...de...**

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | % | % | % |
| S...ce f...m ...te...g ...age i... a...age h...me | 66 | 67 | 64 |
| Pe...ce...tage f... il...im... ...ted f... m f...eig... ...ces | 52 | 60 | 44 |
| Pe...ce...tage f... ...ld'...e...g c... ...med b... U.S. | 50 | 53 | 48 |
| Di...al f... clea... a...te i... the U.S. | 47 | 57 | 39 |
| | | | |
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The exact reasons for the differences between the sexes are not well understood and require more research. Although there are no significant education level differences between men and women in the survey sample, there may be differences in their science backgrounds, which could prove to be a factor in answering the quiz questions. Interestingly, despite the gender differences in knowledge and attitudes, there are few differences between the sexes in terms of environmental and energy-saving behavior. The only significant differences are found in two activities, which women have a higher tendency to perform frequently than men: recycle newspapers, cans, and glass (women 63%, men 57%), and purchasing lamps and appliances that are energy efficient (women 52%, men 42%).

...

As in past years, age often plays an important role in environmental attitudes. In general, pro-environment sentiment declines as people grow older, creating an "environmental generation gap." For example, when Americans offer their opinion of current environmental laws and regulations, the percentage saying that laws for protecting the environment "do not go far enough" decreases from 47 or 48% of Americans under age 45, to 43% among those age 45–64, to 35% of those age 65 and over.

A generation gap is also evident with regard to attitudes toward specific environmental laws and regulations. Those age 65 and over continue to be the least likely to say current laws do not go far enough for each of the five issues asked about, and they are more likely than average to say that current laws protecting endangered species and laws protecting wetland areas already go to far. This contrasts with Americans age 35–44, who are the most likely to say that laws for protecting air, wetlands, endangered species, and energy resources do not go far enough.

When describing the level of their own knowledge about energy issues, middle-age Americans rate themselves the highest, with eight in ten (81%) of those age 45–64 stating that they know a lot or a fair amount about energy issues and problems. This figure falls to 70% among those 18–34, 73% among those age 65 and older, and 75% among those 35-44.

As was true with previous surveys focusing on the environment, actual knowledge about energy issues also follows an age pattern. Actual knowledge is highest among middle-aged Americans: on the 10 question quiz, Americans age 35–44 and those age 45–64 both averaged 4.3 correct answers. These scores are slightly higher than the 4.1 answered correctly by those 18–34 and significantly higher than those of Americans age 65 and older (3.7). This pattern may be a reflection of overall interest in science and the environment (other Roper data show that interest in both topics peaks among middle-aged Americans) and in technology (for which interest decreases with age).

However, the 2001 survey found a surprising trend in behavior across age groups. For five of the seven environmentally-friendly activities mentioned, the likelihood of frequently performing the activity increases with age. This is most evident for accelerating slowly to conserve gasoline when driving (36 percentage points higher among those age 65+ than among those age 18–34), purchasing lamps and appliances that are energy-efficient (27 percentage points higher among those age 65+ than among those age 18–34), and recycling things such as newspapers, cans, and glass (23 percentage points higher among those age 65+ than among those age 18–34). Only the frequent use of alternative sources of transportation is higher among those age 18–34 than among older Americans.

This pattern is surprising because, in earlier data on attitudes toward the relationship between energy conservation and economic development and on opinions of current environmental laws, younger Americans tended to give higher, more environment-friendly ratings than older Americans. These differences may be a reflection of temperament, purchasing power, and the responsibilities of home ownership. But it certainly is a trend that is worth watching, as involvement by Americans of all ages in these environmentally-friendly activities can have a significant impact on environmental and energy issues.

A nationwide cross-section of 1,503 adults, 18 years of age and older, was interviewed for the 2001 NEETF/Roper Survey. Interviews were conducted by telephone from July 26 to September 5, 2001. Results can be projected to the total adult population of the continental United States who would be willing to be interviewed in a telephone study of this kind.

The margin of error as a result of sampling is plus or minus two percentage points at the 0.95 confidence level, although it is larger for the results for smaller subgroups of the public. For example, the sampling error is plus or minus four percentage points for results among the 485 adults in the sample age 18–34. Previous versions of this study (known as the Times Mirror Magazines National Environmental Forum from 1992 to 1995) had a

The demographic characteristics of the random sample were compared with the most recent Census Bureau estimates, and corrective weights were applied to ensure proper representation based on age, gender, and educational attainment.

100%

Responses were computerized and rounded off to the nearest whole percentage. As a result, percentages in certain charts and columns may sometimes total slightly more or less than 100%. Also, in certain charts and analyses, the results for those who said “don't know” or chose not to answer may have be omitted.

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Hello, I'm _____ from The Roper Poll and we're conducting an important survey today about the environment. This is a research study; we are not selling anything and all answers will be kept confidential. For this interview, may I please speak to the youngest adult male, who is at least 18, who lives there and is home? (IF NO MALE IS AVAILABLE) Then may I speak to the oldest adult female, who is at least 18, who lives there and is home?

1. Most of the time, do you think energy conservation and economic development can go hand in hand, or that we must choose between energy conservation and economic development?
   - ❑ Can go hand in hand
   - ❑ Must choose between energy conservation and development
   - ❑ Depends (vol.)
   - ❑ Don't know

2. When it is impossible to find a reasonable compromise between economic development and energy conservation, which do you usually believe is more important: economic development or energy conservation?

   - ❑ Economic development
   - ❑ Energy conservation
   - ❑ Depends (vol. )
   - ❑ Don't know

3. There are differing opinions about how far we've gone with environmental protection laws and regulations. At the present time, do you think environmental protection laws and regulations have gone too far, or not far enough, or have struck about the right balance?

   - ❑ Gone too far
   - ❑ Not far enough
   - ❑ Struck about right balance
   - ❑ Don't know

4. Thinking now about some specific environmental and energy issues, at the present time, do you think laws and regulations for (READ ITEM) have gone too far, not far enough, or have struck about the right balance?

   a. Fighting air pollution
   b. Conserving energy resources
   c. Protecting endangered species of plants, animals, and insects
   d. Protecting wetland areas
   e. Fighting water pollution

5. Please indicate for each of the following statements about energy whether you strongly agree, mostly agree, mostly disagree, or strongly disagree.

   a. Technology will find a way of solving energy problems
   b. Energy conservation will play an increasingly important role in the nation's economic future
   c. Private companies need to place more emphasis on educating the public to help solve energy problems
   d. Government agencies need to place more emphasis on educating the public to help solve energy problems
   e. Energy conservation should be taught in our schools

6. In general, how much do you feel you yourself know about energy issues and problems — would you say you know a lot, a fair amount, only a little, or practically nothing?

   ❑ A lot
   ❑ A fair amount
   ❑ Only a little
   ❑ Practically nothing
   ❑ Don't know

The next group of questions are about issues that have been covered in the media during the past two years or so. They are designed to tell us how much accurate information people are getting from television, newspapers, magazines, and other sources. Each question has four possible answers. If you don't know the answer, you can just state that you don't know. (INTERVIEWER: READ BOTH THE LETTER, e.g., "A", AND THE ANSWER, e.g., "BY BURNING OIL, COAL, AND WOOD". REPEAT AS NECESSARY)

7. How is most electricity in the United States generated? Is it…

   a. By burning oil, coal, and wood
   b. With nuclear power
   c. Through solar energy, or
   d. At hydro electric power plants?
   Don't know

13. In the past ten years, has the average miles per gallon of gasoline used by vehicles in the U.S. …

    a. Increased
    b. Remained the same
    c. Gone down, or
    d. Not been tracked?
    Don't know

14. Scientists have not determined the best solution for disposing of nuclear waste. In the U.S. , what do we do with it now?Do we…

    a. Use it as nuclear fuel
    b. Sell it to other countries
    c. Dispose of it in landfills, or
    d. Store and monitor the waste?
    Don't know

15. The U.S. currently uses oil from both domestic and foreign sources. What percentage of the oil is imported?Is it…

    a. 10 percent
    b. 20 percent
    c. 35 percent, or
    d. 55 percent?
    Don't know

16. Scientists say the fastest and most cost-effective way to address our energy needs is to...

    a. Develop all possible domestic sources of oil and gas
    b. Build nuclear power plants
    c. Develop more hydroelectric power plants, or
    d. Promote more energy conservation?
    Don't know

17. Now I would like to ask you about some of the things you may do in your day-to-day life. For each of the following things, would you please tell me whether you never do it, sometimes do it, or frequently do it. First / Next…
    (INTERVIEWER: DO NOT READ ITEM LETTERSUse c 3LETosuhe ear hy6(wspa(ced ycand y)]TJlas

f. Lower the thermostat in the winter to conserve energy
g. Accelerate slowly to conserve gasoline when driving

Finally, I am going to ask you about some different activities and hobbies that people can engage in. For each one, would you please tell me if you have done it in the past 12 months or not?

a. Fishing
b. Outdoor swimming
c. Hunting
d. Motor boating
e. Downhill skiing
f. Golfing
g. Bird-watching
h. Gardening
i. Running or jogging

I have just a few questions for classification purposes.

D-1. Which of the following age categories includes your age?

- ❑ 65 or older
- ❑ 55 to 64
- ❑ 45 to 54
- ❑ 35 to 44
- ❑ 25 to 34
- ❑ 18 to 24
- ❑ Refused (vol. )

D-2. What was the last grade of school you completed, not counting specialized schools like secretarial, art, or trade schools?

- ❑ 8th grade or less (1-8)
- ❑ Some high school (9-11)
- ❑ High school graduate (12)
- ❑ Some college (13-15)
- ❑ College graduate (16)
- ❑ Post-graduate (17+)
- ❑ Refused

N • E ▲ E ■ T • F

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