NOVEMBER 2023

IEEE POWER & ENERGY SOCIETY

SURVEY ON THE ROLE OF ENGINEERS IN ADDRESSING CLIMATE CHANGE
• **Climate change and extreme weather** are top concerns when it comes to the environment. These concerns, however, become secondary when compared to potential economic threats (e.g., economic recession) or political instability.

• A majority agrees that an **outdated electric grid** presents the biggest energy-related challenge, followed by government mandates and net-zero goals being misaligned with the current energy infrastructure realities.

• Most respondents worry that it may be difficult to reverse climate change on a global scale but believe that **technology is the key to addressing it**.

• A plurality of respondents has little understanding of the role that engineers play in addressing climate change.

• Even so, **respondents trust engineers the most** to find solutions to achieving a clean energy future, more so than researchers, environmental advocacy groups, utility companies, or government agencies.

• A plurality of respondents believe that engineers have the knowledge and skill set to research and develop new forms of renewables.
• Messages that provide concrete examples of what engineers do to address climate change (e.g., constructing green buildings, monitoring environmental conditions, reducing electronic waste, etc.) resonate the most.

• Engineers are most often described with positive terms such as “innovative,” “creative,” and “smart.”

• When it comes to describing our energy future, the word “sustainable” resonates the most, followed by “cleaner.” Words like “smart,” “modernized,” and “engineered” resonate less.

• Most respondents view engineers positively and acknowledge that they play a key role in addressing climate change, but do not understand what that role is. Educating the public about their role would be beneficial.

• A large majority (82%) expressed an interest in learning more about what engineers are doing, or planning to do, to address climate change.
ISSUES & CONCERNS
### Issues & Concerns

Which of the following environment- and energy-related issues are of the greatest concern to you? (Select your top 3 choices)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Concern Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change and more extreme weather events</td>
<td>56%</td>
</tr>
<tr>
<td>Energy affordability</td>
<td>51%</td>
</tr>
<tr>
<td>Health effects of pollution</td>
<td>44%</td>
</tr>
<tr>
<td>Power outages/power reliability</td>
<td>33%</td>
</tr>
<tr>
<td>Physical and cyber energy security threats</td>
<td>30%</td>
</tr>
<tr>
<td>The need for more renewable or non-carbon energy</td>
<td>29%</td>
</tr>
<tr>
<td>Using fossil fuels in traditional generation</td>
<td>12%</td>
</tr>
</tbody>
</table>
**ISSUES & CONCERNS**

On a scale of 1 to 10, with 1 being “not concerned at all” and 10 being “extremely concerned,” how concerned are you, personally, about the threat posed by each of the following issues to the nation and the world?

<table>
<thead>
<tr>
<th>Issue</th>
<th>Extremely concerned (9-10)</th>
<th>Concerned (6-8)</th>
<th>Neutral (5)</th>
<th>Not concerned (1-4)</th>
<th>Net “Concern” Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic recession</td>
<td>40%</td>
<td>41%</td>
<td>8%</td>
<td>11%</td>
<td>+70</td>
</tr>
<tr>
<td>Economic depression</td>
<td>38%</td>
<td>43%</td>
<td>8%</td>
<td>12%</td>
<td>+69</td>
</tr>
<tr>
<td>Political instability</td>
<td>31%</td>
<td>47%</td>
<td>10%</td>
<td>11%</td>
<td>+67</td>
</tr>
<tr>
<td>Risk of superpower war</td>
<td>28%</td>
<td>43%</td>
<td>10%</td>
<td>19%</td>
<td>+52</td>
</tr>
<tr>
<td>Extreme weather</td>
<td>26%</td>
<td>44%</td>
<td>11%</td>
<td>19%</td>
<td>+51</td>
</tr>
<tr>
<td>Climate change</td>
<td>32%</td>
<td>37%</td>
<td>9%</td>
<td>21%</td>
<td>+48</td>
</tr>
</tbody>
</table>

*Net Concern = (Extremely concerned + Concerned) - Not concerned

**Key Insight:** In the face of economic and/or political instability, weather- and climate-related issues become less of a concern.
On a scale of 1 to 10, with 1 being “no threat at all” and 10 being “extreme threat,” how would you score your reaction to the following energy-related challenges?

Key Insight: A large majority of respondents believe that an older electric grid and government hurdles present the greatest challenges to addressing climate change.
Looking ahead to the future, how optimistic or pessimistic are you about the ability to significantly reverse climate change on a global level?

- Very optimistic: 12%
- Somewhat optimistic: 37%
- Somewhat pessimistic: 36%
- Very pessimistic: 14%

Looking ahead to the future, how optimistic or pessimistic are you about the ability to use technology to address climate change on a global level?

- Very optimistic: 15%
- Somewhat optimistic: 45%
- Somewhat pessimistic: 30%
- Very pessimistic: 11%

Key Insight: Although respondents worry about our ability to significantly reverse climate change, a majority are optimistic that technology is the key to addressing it.
Do you believe that failing to address climate change poses a threat to you, your children, and the next generation?

- Strongly believe: 43%
- Somewhat believe: 36%
- Somewhat do not believe: 11%
- Do not believe at all: 10%

Do you believe that failing to address climate change represents a clear and present danger to America’s economic safety and security?

- Strongly believe: 35%
- Somewhat believe: 39%
- Somewhat do not believe: 14%
- Do not believe at all: 12%

**Key Insight:** A large majority believes that climate change poses a danger to society and must be addressed.
IEEE & ELECTRICAL/POWER ENGINEERS
How familiar are you with the Institute of Electrical and Electronic Engineers (IEEE)?

- Very familiar: 8%
- Somewhat familiar: 21%
- Not very familiar: 28%
- Not familiar at all: 43%

Key Insight: Nearly 3 in 4 respondents (71%) are unfamiliar with the IEEE.
In general, what is your opinion of electrical and/or power engineers and the role they play in addressing climate change?

- **Neutral - No opinion either way**: 40%
- **Somewhat negative**: 9%
- **Very negative**: 4%
- **Don't know/Not sure**: 6%
- **Very positive**: 12%

How aware are you, personally, of the role that engineers play in addressing climate change?

- **Very aware**: 38%
- **Somewhat aware**: 33%
- **Not very aware**: 18%
- **Not aware at all**: 11%

Key Insight: The large percentage of mid-range responses (i.e., “Neutral,” “Somewhat aware,” and “Not very aware”) suggests that a plurality of respondents know little about the role engineers play in addressing climate change.
Which of the following groups, companies, and organizations do you trust the most when it comes to determining and implementing solutions on how we can best fight climate change and achieve a clean energy future? (Select your top 3 choices)

- Engineers who develop and utilize clean energy technologies: 48%
- University researchers: 29%
- Environment advocacy groups/organizations: 28%
- Independent energy developers: 25%
- Gas and/or electric utilities: 24%
- Local, state, and federal government agencies: 22%
- Energy efficiency advocacy groups/organizations: 24%
- Think tanks that address climate change and clean energy issues: 23%
- National laboratories: 19%
- Environmental Defense Council: 17%

Key Insight: Despite knowing little about the actual role engineers play in addressing climate change, respondents do believe that engineers can be trusted the most to find solutions to achieving a clean energy future.
In your opinion, how important is the role that engineers play in addressing climate change?

- 37% Very important
- 42% Somewhat important
- 13% Don’t know/Not sure
- 4% Not important at all
- 5% Not very important

Key Insight: Again, respondents may be unsure of what engineers do to address climate change, but most believe their role is an important one.
In your opinion, what should engineers focus on most when it comes to addressing climate change? (Select your top 2 choices)

- Researching and developing new forms of renewables, energy storage systems, and clean technology: 47%
- Reducing carbon emissions by constructing clean technology such as wind turbines, solar panels, and hydroelectric power plants: 42%
- Modernizing and updating aging electric grids: 37%
- Being more energy efficient to reduce overall demand: 31%
- Developing “smart cities,” where the needs of residents are met, while contributing to major improvements in local and global environments: 15%
- Reducing the incidence of wildfires: 14%

Key Insight: A plurality of respondents believe that engineers have the knowledge and skill set necessary to find new, innovative ways to address climate change.
MESSAGES
<table>
<thead>
<tr>
<th>Rating</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Positive (9-10)</td>
<td>27%</td>
</tr>
<tr>
<td>Positive (6-8)</td>
<td>55%</td>
</tr>
<tr>
<td>Neutral (5)</td>
<td>12%</td>
</tr>
<tr>
<td>Negative (1-4)</td>
<td>6%</td>
</tr>
</tbody>
</table>

Net “Positive” Score = +76

Key Insight: Although all of the messages regarding engineers scored highly, this particular message, which provided examples of what engineers do, scored the highest, with a net positive score of 76.
On a scale of 1 to 10, with 1 being “Extremely negative” and 10 being “Extremely positive,” how would you rate the following statement?

“Engineers are among the world’s best and brightest minds, whose creative ideas and innovative solutions are helping transform an electric system that will withstand climate change and build the smarter energy future that this and the next generation expect and deserve.”

Extremely Positive (9-10) 26%
Positive (6-8) 53%
Neutral (5) 13%
Negative (1-4) 8%

Net “Positive” Score = +71
Net Positive = (Extremely positive + positive) - Negative

Key Insight: As demonstrated by the high Net Positive score (+71), respondents believe that engineers play a key role in building a smarter energy future.
On a scale of 1 to 10, with 1 being “Extremely negative” and 10 being “Extremely positive,” how would you rate the following statement?

“Engineers are leaders in the fight against climate change, developing smart and sustainable energy solutions that will help create a cleaner, more resilient, and more affordable energy future for this and the next generation.”

Net “Positive” Score = +70

Key Insight: Engineers are not simply contributors to a better and cleaner energy future - respondents agree they are leaders.
When you think of engineers and the role they play in the world’s energy future, what is a positive word that comes to mind?
When you think of engineers and the role they play in the world’s energy future, what is a negative word that comes to mind?

Key Insight: Respondents often struggled to find a negative word to describe engineers, as noted by the high frequency of “Nothing” and “Don’t Know” responses.
Key Insight: When it comes to describing our energy future, words like “sustainable” and “cleaner” resonate most with respondents.
How supportive or unsupportive are you of engineers playing a far more public role in addressing climate change?

Key Insight: 58% gave a “Somewhat supportive” or “Neutral” response, suggesting that most people are unsure about the specific roles that engineers play in the fight against climate change. Educating the public in this area would be beneficial.
How confident are you that engineers can develop the solutions to help address climate change and help achieve a clean energy future?

Key Insight: Again, the majority of mid-range responses (“Somewhat confident” or “Neutral”), suggests that although most people view engineers positively, there is uncertainty over their exact role in addressing climate change.
COMMUNICATIONS
Which of the following tools should the Institute of Electrical and Electronic Engineers (IEEE) utilize the most to keep you aware of the actions to address climate change? (Select your top 5 choices)

<table>
<thead>
<tr>
<th>Tool</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>National news websites</td>
<td>53%</td>
</tr>
<tr>
<td>Local TV news</td>
<td>49%</td>
</tr>
<tr>
<td>Cable TV news</td>
<td>48%</td>
</tr>
<tr>
<td>Facebook</td>
<td>32%</td>
</tr>
<tr>
<td>YouTube</td>
<td>32%</td>
</tr>
<tr>
<td>Local news websites</td>
<td>32%</td>
</tr>
<tr>
<td>Public news radio</td>
<td>24%</td>
</tr>
<tr>
<td>Instagram</td>
<td>22%</td>
</tr>
<tr>
<td>TikTok</td>
<td>18%</td>
</tr>
<tr>
<td>Print newspapers</td>
<td>18%</td>
</tr>
<tr>
<td>X – formerly Twitter</td>
<td>17%</td>
</tr>
<tr>
<td>Local print newspaper</td>
<td>14%</td>
</tr>
<tr>
<td>XM news radio</td>
<td>6%</td>
</tr>
</tbody>
</table>
How interested are you in learning more about what engineers are doing, or planning to do, to address climate change and develop a cleaner energy future?

Very interested

Somewhat interested

Not very interested

Not interested at all

Key Insight: 82% of respondents expressed an interest in learning more about the role that engineers play in the fight against climate change.
METHODOLOGY

Survey Conducted: November 15-21, 2023

Survey Type: Online

Sample Size: Nationwide, n=2000

Margin of Error: +/-2% at 95% Confidence Interval

Due to rounding, percentages in figures may not always sum to exactly 100

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