

ENERGY AND OHIO'S MANUFACTURERS: RISKS, OPPORTUNITIES & POLICY PREFERENCES

A SURVEY OF MEMBERS OF THE OHIO MANUFACTURERS' ASSOCIATION



**CONDUCTED BY
THE CENTER FOR CLIMATE CHANGE COMMUNICATION
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**FOR
THE ENERGY FOUNDATION
&
THE OHIO MANUFACTURERS' ASSOCIATION**

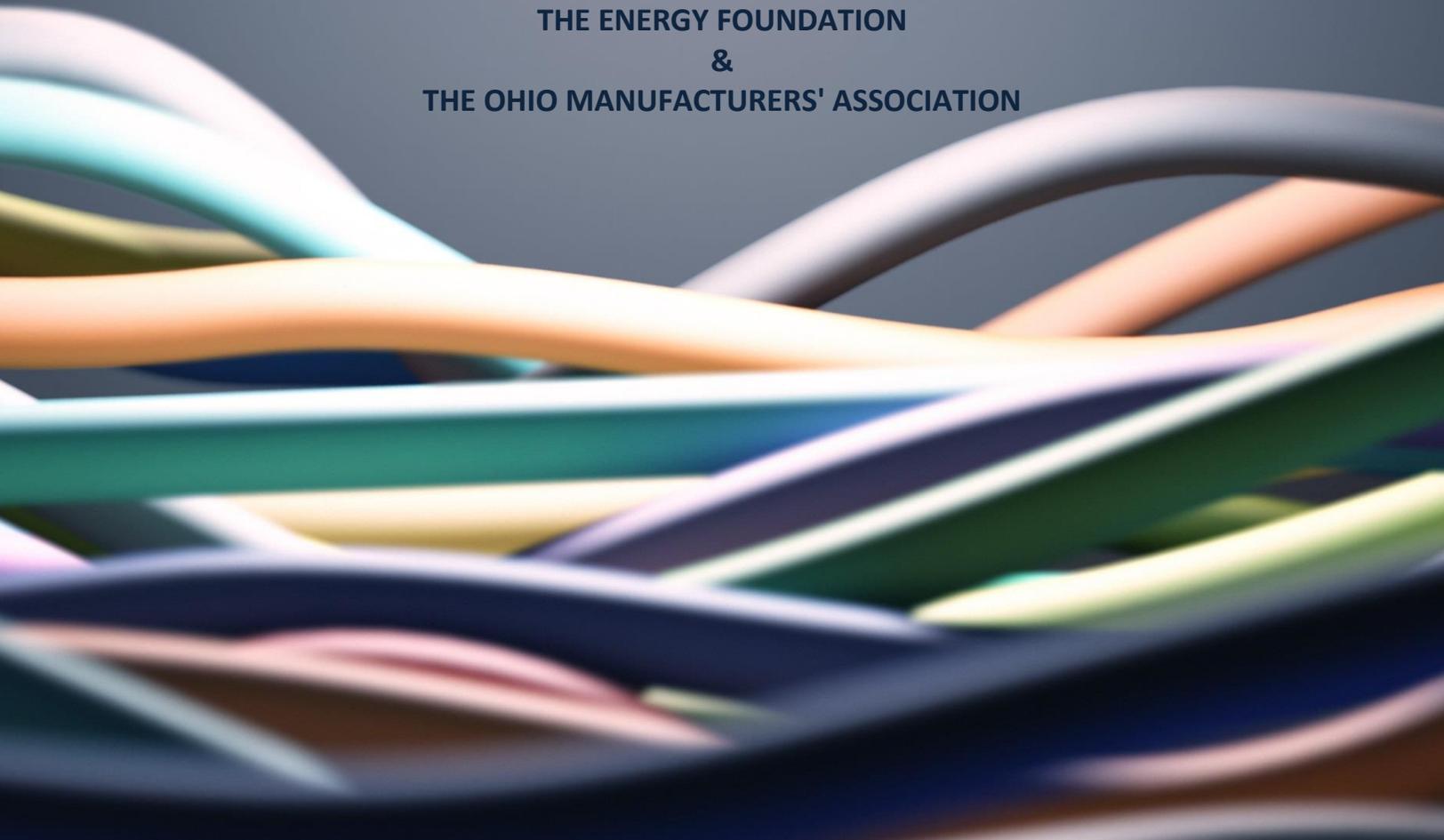


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OVERVIEW

In September and October of 2014, 805 members of the Ohio Manufacturers' Association were surveyed to assess their views on their energy needs, renewable energy, and their preferences for energy policies at the state and national level. A total of 120 people responded to the survey, from 100 companies, representing a 15% response rate. The key findings are reported below.

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KEY FINDINGS

Risk Management

- A large majority of respondents say that uncertainty about energy costs makes planning difficult for their companies. They say their companies are very concerned about volatility in their energy costs and price increases.
- Half or more of respondents view extreme weather as a threat to the electricity system and to transportation, roads, and bridges. Electrical outages are not currently a major problem for most respondents' companies, although more than one quarter (28%) have experienced outages every few months.
- Two-thirds of respondents' companies have made changes over the past five years to reduce energy risks; over half made energy efficiency improvements (57%) and 40 percent signed long-term energy contracts. The most commonly cited reasons are economic benefits, awareness of new efficiency opportunities, energy use analysis, and rebates; environmental benefits are also commonly cited.
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Energy Opportunities

- Ninety-five percent of the companies represented in the survey are likely to make efficiency improvements over the coming five years.
- Respondents do not view onsite energy generation as viable for their companies. They say the most viable option would be backup generators and the least viable would be hydroelectricity.
- Respondents see many barriers to the adoption of wind, solar, or biomass energy generation; a lengthy payback time frame and high initial costs are the most cited barriers to adoption.
- The barriers to co-generation and waste energy recovery are not as high as those impeding renewable energy adoption, but they are still substantive. The initial costs and lengthy payback time frame are again the largest barriers.
- Cost reductions, environmental benefits, and onsite power generation are the top benefits expected from the adoption of renewable energy, co-generation and waste-energy recovery. Public relations benefits are viewed as least likely.
- Close to two-thirds of respondents (63%) say that energy investments must have a positive return in two years or less. Over a quarter (27%) are willing to wait three years for positive returns, but only five percent are willing to wait longer than that.
- Forty percent of respondents say their company has an energy conservation goal. The primary motivation for this goal is to reduce the company's energy costs, but environmental benefits are also an important motivation.

- Close to a quarter of the respondents' companies (23%) have a carbon reduction goal. The primary motivation for these programs is the environmental benefit they provide.
- Respondents' impressions of companies that are moving to sustainable energy sources are largely positive. While sixty percent (62%) say that these companies are trying to make a good impression on the public, few respondents believe they are being financially irresponsible or unwise. Over a third believe these companies are admirable, and two-thirds say they are being environmentally responsible. A third believe these companies are profitable, and half believe these companies are making investments that will result in cost reductions in the future.

Policy Options

- Respondents' top priorities are energy policies that lead to reliable and inexpensive energy with stable prices.
- Eighty-two percent of respondents say that tax credits for companies that install high efficiency equipment would be very beneficial for their company.
- Three-quarters of respondents say that offshore drilling would benefit them, and about sixty percent favor tax credits for construction of new nuclear power plants.
- Two-thirds of respondents believe that shareholders should pay for environmental remediation of old utility assets, and that utility shareholders should bear the costs of energy price spikes caused by extreme weather.
- Over 60 percent of respondents (63%) believe that allowing competitive energy efficiency programs would create consistent and low energy costs
- Half of respondents say that electric grid operators should recognize distributed power generation as a capacity resource for capacity and transmission planning.
- Opposition to both a carbon tax and a national cap-and-trade program is high: Majorities say a carbon tax or a cap-and-trade program would be harmful. Regulation of CO₂ as a pollutant is also viewed very negatively, with 68 percent of respondents saying it would be harmful to their company.

Key Contacts and Energy Community Respondents

Two groups of people were included in this survey: “Key Contacts” and participants in the OMA “Energy Community.” *Key Contacts* are the lead person designated by OMA member companies to interact with OMA (one contact per company). *Energy Community* participants are people from member companies that OMA has identified as being interested in energy (as indicated by attending OMA-sponsored workshops on energy, requesting information from OMA on the topic, etc); each member company can have multiple people in the *Energy Community*. **As such, the *Key Contacts* results can be interpreted as representative of OMA members as a whole, while the *Energy Community* results can be interpreted as representing this OMA group with special interest in energy.**

Differences between the *Energy Community* respondents and the *Key Contacts* were apparent throughout the survey. As compared to the *Key Contacts*, *Energy Community* members reported:

- Greater concern at their companies about energy supply disruptions and perceptions of greater threat to the electricity system from extreme weather;
- Fewer power outages, and more reductions in power outages over the past five years;
- More changes made by their company to reduce risks to their energy supplies and costs;
- Stronger social responsibility and environmental motivations for their companies' efficiency improvements;
- Higher likelihood of making energy efficiency improvements in the next five years;
- Higher perceived viability of onsite energy generation and renewable energy (although the options are still not seen as being highly viable);
- Greater perceived benefits and fewer perceived barriers to the adoption of renewable energy, co-generation, and waste-energy recovery;
- Greater likelihood of having company goals to reduce energy reduction and/or carbon emissions; and greater likelihood of reporting that these goals are motivated by their environmental benefits, public relations value, and cost savings;
- Greater belief that companies moving to renewable energy are innovative, making investments that will save money in the future, admirable, profitable, and protecting themselves against risks;

PART I: RISK MANAGEMENT

Perceptions of the Risks and Uncertainties of Energy Availability and Costs

A large majority of respondents say that uncertainty about energy costs makes planning difficult for their companies.

| <i>"Uncertainty about energy costs makes it difficult for my company to plan ahead."</i> | | | | |
|---|----|-----------------|--------------|------------------|
| Response Scale | | All Respondents | Key Contacts | Energy Community |
| <i>Strongly Agree</i> | +4 | 6% | 4% | 6% |
| | +3 | 18% | 16% | 15% |
| | +2 | 25% | 23% | 25% |
| | +1 | 24% | 21% | 26% |
| <i>Neutral or Don't Know</i> | 0 | 10% | 9% | 9% |
| | -1 | 8% | 7% | 9% |
| | -2 | 7% | 11% | 6% |
| | -3 | 3% | 0% | 4% |
| <i>Strongly Disagree</i> | -4 | 0% | 0% | 0% |
| Average | | | | |
| | | 1.2 | 1.1 | 1.1 |
| Standard Deviation | | | | |
| | | 1.7 | 1.7 | 1.7 |
| N | | | | |
| | | 107 | 57 | 80 |

* Due to rounding, percentage columns may not total to 100%.

Close to three-quarters of respondents (72%) agree that planning ahead is more difficult for their company, due to uncertainty about energy costs. Close to a quarter (24%) agree strongly that uncertainty makes planning difficult, selecting "+3" or "+4" on the response scale,

compared to 3 percent who strongly disagree, choosing "-3" or "-4," indicating strong disagreement.

Sources of Uncertainty

Manufacturers in Ohio are concerned about several uncertainties in their energy availability and costs, but they are particularly concerned about energy cost increases due to government policies, and the volatility of energy prices.

Concern about energy supply disruptions due to extreme weather and supply chain disruptions due to energy availability are both slightly above the middle of the scale, indicating some – but not strong – concern.

| [On a 0 to 10 scale*] How concerned is your company currently about... | | | | | | | | | |
|---|------------------------|-------------|----------|---------------------|-------------|----------|-------------------------|-------------|----------|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Energy cost increases due to government policies | 7.8 | 2.1 | 120 | 7.7 | 2.1 | 57 | 7.7 | 2.1 | 92 |
| Volatility of energy prices | 7.1 | 2.2 | 120 | 6.9 | 2.1 | 57 | 7.2 | 2.2 | 92 |
| Energy supply disruption due to energy availability | 5.9 | 2.4 | 119 | 5.5 | 2.4 | 56 | 6.0 | 2.6 | 92 |
| Supply chain disruption due to energy availability | 5.3 | 2.5 | 119 | 5.1 | 2.4 | 56 | 5.3 | 2.6 | 91 |

* 0 (Not at all concerned) – 10 (Extremely concerned)

Respondents from the Energy Community express higher concern than Key Contacts about energy supply disruptions due to energy availability; they are also slightly more concerned about price volatility and supply chain disruptions.

Perceptions of the Threat of Extreme Weather to Systems & Infrastructure

Over the next five years, manufacturers in Ohio perceive a moderate degree of threat from extreme weather to the electricity and transportation systems, and lower levels of threat to water availability or quality.

| [On a 0 to 10 scale*] In your opinion, over the next 5 years, how much of a threat does extreme weather pose to the following systems in the communities where you operate in Ohio? | | | | | | | | | |
|--|-----------------|------|-----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| The electricity system | 5.9 | 2.2 | 120 | 5.6 | 2.1 | 57 | 5.9 | 2.2 | 92 |
| Transportation, roads, & bridges | 5.5 | 2.2 | 120 | 5.6 | 2.2 | 57 | 5.5 | 2.2 | 92 |
| Water availability | 3.8 | 2.3 | 120 | 3.5 | 2.2 | 57 | 3.9 | 2.3 | 92 |
| Water quality | 3.9 | 2.4 | 120 | 3.7 | 2.3 | 57 | 4.0 | 2.3 | 92 |

* 0 (No threat at all) – 10 (Very high threat)

Respondents from the Energy Community are more likely than Key Contacts to see extreme weather as a greater threat to the electricity system, to water availability, and to quality.

Power Outages

Over the past five years, more than two-thirds of respondents experienced a power outage no more than once a year (69%), and most respondents (64%) say that this frequency has not increased (or decreased) relative to the past. A minority experienced frequent outages and an increase in their occurrence. Conversely, close to a quarter (22%) report fewer outages over the past five years than in the past.

| Approximately how frequently have significant power outages occurred during the past 5 years? | | | |
|--|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| <i>Less than once per year</i> | 31% | 27% | 38% |
| <i>About once per year</i> | 38% | 39% | 36% |
| <i>Several times per year</i> | 28% | 30% | 23% |
| <i>Every month or two</i> | 3% | 4% | 3% |
| | | | |
| <i>N</i> | <i>120</i> | <i>56</i> | <i>88</i> |

Key Contacts report more frequent power outages than members of the Energy Community: 30 percent experience outages several times a year, compared to 23 percent within the Energy Community. Twenty percent of Energy Community respondents say power outages at their facilities have decreased over the past five year, compared to 14 percent of the Key Contacts, who say their facilities have seen outage decreases.

| Over the past 5 years have power outages in your Ohio facilities been happening... | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| <i>Much less often</i> | 4% | 2% | 4% |
| <i>Less often</i> | 18% | 14% | 20% |
| <i>About the same as previously</i> | 64% | 71% | 63% |
| <i>More often</i> | 12% | 11% | 12% |
| <i>Much more often</i> | 2% | 2% | 2% |
| | | | |
| <i>N</i> | <i>120</i> | <i>56</i> | <i>86</i> |

* Due to rounding, percentage columns may not total to 100%.

Company Responses to Energy Supply Risks and Uncertainties

Over the past five years, two-thirds of all respondents' companies have made changes to reduce energy risks. Over half made energy efficiency improvements (57%) and 40 percent signed long-term energy contracts.

| Over the past 5 years, has your company made any changes to reduce the risks associated with its energy supply and/or uncertainty about energy costs in Ohio? What changes has your company made (check all that apply) | | | | | | | |
|--|---|-----------------|----------------|--------------|----------------|------------------|----------------|
| | | All Respondents | | Key Contacts | | Energy Community | |
| | | Percent | Type of Change | Percent | Type of Change | Percent | Type of Change |
| Yes | | 66% | | 64% | | 66% | |
| | • Energy efficiency improvements | | 57% | | 58% | | 55% |
| | • Long-term energy contracts | | 40% | | 37% | | 44% |
| | • Demand response | | 28% | | 23% | | 33% |
| | • Hedged energy contracts | | 20% | | 12% | | 21% |
| | • On-site electrical generation (e.g., combined heat & power, renewable energy) | | 10% | | 11% | | 11% |
| DK | | 4% | 1% | 2% | 0% | 6% | 1% |
| No | | 30% | | 34% | | 29% | |
| N | | 120 | 76 | 57 | 36 | 92 | 56 |

The companies of Energy Community members are more likely to have made several changes that reduce the risks to their energy supplies, including long-term contracts, demand response and hedged energy contracts. Key Contacts' companies are slightly more likely to have made energy efficiency improvements.

| Number of changes made | | | |
|-------------------------------|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| 1 | 9% | 19% | 11% |
| 2 | 18% | 39% | 25% |
| 3 | 25% | 36% | 44% |
| 4 | 8% | 6% | 16% |
| 5 | 2% | 0% | 4% |
| Average | | | |
| | 2.6 | 2.3 | 2.8 |
| Std. Deviation | | | |
| | 1.0 | 0.8 | 1.0 |
| N | | | |
| | 75 | 36 | 56 |

On average, all respondents who made changes indicated that they had made 2.6 of the listed changes. Energy Community respondents report more changes than Key Contacts do.

Factors Motivating Energy Efficiency Improvements

Respondents say a number of factors were important in their companies' decision to make energy efficiency improvements (*see next page*). The factors cited as most important were economic benefits, awareness of new efficiency opportunities, and an analysis of their energy use. Other factors cited as important (defined as scoring six or higher on the 11 point scale) are rebates, competitive advantage, and environmental benefits.

Compared to Key Contacts, Energy Community members give slightly higher importance ratings to factors that received lower ratings, including environmental benefits, social responsibility, public relations benefits, favorable financing terms, and acting as leaders within their industry.

[On a scale of 0 to 10*] Over the past 5 years, has your company improved the energy efficiency of your Ohio facilities or processes? How important were each of the following factors in your company's decision to improve its energy efficiency in Ohio?

| | Motivations | All Respondents | | | Key Contacts | | | Energy Community | | |
|---------------------------------|---|-----------------|------------|------|--------------|------------|------|------------------|------------|------|
| | | % | Avg | S.D. | % | Avg | S.D. | % | Avg | S.D. |
| Factors Motivating Improvements | | 96% | | | 96% | | | 98% | | |
| | • Economic benefits | | 8.8 | 1.3 | | 8.8 | 1.4 | | 8.9 | 1.3 |
| | • Awareness of new efficiency opportunities | | 7.5 | 1.9 | | 7.4 | 1.8 | | 7.5 | 2.1 |
| | • Analysis of our energy use | | 7.4 | 2.2 | | 7.2 | 2.2 | | 7.5 | 2.0 |
| | • Rebates | | 6.9 | 3.0 | | 6.2 | 3.3 | | 6.8 | 3.1 |
| | • Competitive advantages | | 6.5 | 2.8 | | 6.1 | 3.1 | | 6.8 | 2.5 |
| | • Environmental benefits | | 6.0 | 2.6 | | 5.2 | 2.7 | | 6.3 | 2.4 |
| | • Social responsibility | | 5.4 | 2.7 | | 4.7 | 2.7 | | 5.7 | 2.6 |
| | • Acting as leaders within our industry | | 5.1 | 3.1 | | 4.5 | 2.8 | | 5.4 | 3.0 |
| | • Employee morale | | 4.6 | 2.9 | | 4.1 | 3.0 | | 4.6 | 2.9 |
| | • Favorable financing terms | | 4.2 | 3.3 | | 3.6 | 3.1 | | 4.5 | 3.3 |
| | • Public relations benefits | | 4.1 | 2.8 | | 3.1 | 2.5 | | 4.3 | 2.8 |
| No Improvements | | 3% | | | 2% | | | 2% | | |
| Don't Know | | 1% | | | 2% | | | 0% | | |
| <i>N</i> | | <i>120</i> | <i>106</i> | | <i>57</i> | <i>52</i> | | <i>92</i> | <i>81</i> | |

* 0 (Not at all important) – 10 (Very important)

PART II: ENERGY OPPORTUNITIES

Prospective Energy Efficiency Improvements

Ninety-five percent of the respondents say their companies are likely to make efficiency improvements over the coming five years, with 44 percent of respondents saying these improvements are "very likely," and another 33 percent saying they are "moderately likely." None of the respondents say improvements are unlikely. Energy Community gave higher likelihood ratings on average than Key Contacts.

| What is the likelihood that your company will improve the energy efficiency of your Ohio facilities or processes within the next five years? | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| <i>Very unlikely</i> | 0% | 0% | 0% |
| <i>Moderately unlikely</i> | 0% | 0% | 0% |
| <i>Slightly unlikely</i> | 0% | 0% | 0% |
| <i>Neither Likely Nor Unlikely</i> | 5% | 9% | 3% |
| <i>Slightly Likely</i> | 18% | 23% | 14% |
| <i>Moderately likely</i> | 33% | 34% | 34% |
| <i>Very Likely</i> | 44% | 34% | 49% |
| | | | |
| Average* | 6.2 | 5.9 | 6.3 |
| Standard Deviation | 0.9 | 1.0 | .8 |
| N | 106 | 53 | 79 |

* 1 (Very Unlikely) – 7 (Very Likely)

Viability of Onsite Energy Generation

Respondents do not, for the most part, view any of the onsite energy generation options assessed as highly viable options for their companies. None of the eight forms of onsite energy generation were rated above the middle of the scale on average. *(See the appendix for respondents' further clarification of why they did not perceive these options as viable.)*

| [On a scale of 0 to 10*] How viable are each of the following onsite energy options for your company? | | | | | | | | | |
|--|-----------------|------|-----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Using backup generators during periods of peak energy demand | 4.0 | 3.0 | 110 | 3.9 | 2.9 | 55 | 3.8 | 2.9 | 82 |
| Waste energy recovery | 3.7 | 3.3 | 108 | 3.6 | 3.2 | 54 | 3.8 | 3.4 | 80 |
| Solar | 3.2 | 2.8 | 110 | 2.8 | 3.0 | 54 | 3.4 | 2.8 | 83 |
| Combined heat and power (co-generation) | 3.2 | 3.1 | 110 | 2.9 | 3.1 | 55 | 3.1 | 3.1 | 82 |
| Wind | 2.4 | 2.6 | 109 | 2.1 | 2.4 | 54 | 2.6 | 2.7 | 81 |
| Energy storage (batteries, pumped storage) | 2.3 | 2.6 | 110 | 2.4 | 2.9 | 54 | 2.2 | 2.4 | 83 |
| Biomass | 1.7 | 2.3 | 107 | 1.3 | 1.9 | 52 | 1.8 | 2.4 | 79 |
| Hydroelectric | 1.0 | 1.7 | 111 | .9 | 1.8 | 55 | .9 | 1.5 | 83 |

* 0 (Not at all viable) - 10 (Extremely viable)

Compared to Key Contacts, Energy Community members view some of the onsite energy generation options as slightly more viable, although the differences are small.

Barriers to Adoption of Wind, Solar, and Biomass

Respondents see many barriers to the adoption of wind, solar or biomass energy generation.

| [On a 0 to 10 scale*] To what extent are each of the following a barrier to the adoption of renewable energy (wind, solar, biomass) by your company? | | | | | | | | | |
|---|------------------------|-------------|----------|---------------------|-------------|----------|-------------------------|-------------|----------|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Lengthy payback timeframe | 8.3 | 2.1 | 108 | 8.0 | 2.2 | 53 | 8.4 | 1.9 | 81 |
| High upfront costs | 8.0 | 2.4 | 107 | 8.0 | 2.3 | 53 | 8.1 | 2.3 | 81 |
| Physical setting constraints | 6.3 | 3.0 | 107 | 6.5 | 2.8 | 53 | 6.4 | 3.0 | 81 |
| Not suited to conditions in Ohio | 6.2 | 2.7 | 107 | 6.7 | 2.6 | 53 | 6.2 | 2.6 | 81 |
| Low reliability | 6.1 | 2.9 | 108 | 6.4 | 3.0 | 54 | 6.2 | 2.8 | 81 |
| Operations and maintenance | 5.5 | 2.4 | 106 | 5.7 | 2.6 | 53 | 5.4 | 2.5 | 80 |
| Regulatory barriers | 5.0 | 2.8 | 106 | 5.3 | 2.9 | 53 | 4.9 | 2.7 | 80 |
| Utility opposition | 3.8 | 2.8 | 101 | 4.0 | 2.7 | 51 | 3.8 | 2.8 | 76 |

* 0 (Not a barrier) – 10 (Extremely large barrier)

The length of the payback time frame and the high initial costs are the most cited barriers to adoption. Over half the respondents rated these two barriers as a 9 or 10 on the 0 to 10 scales, where 10 represents "extremely large barrier." Six of eight have averages above the middle of the scale.

The Energy Community views the payback time as a slightly greater barrier than the Key Contacts do, but the Key Contacts view a number of other barriers as greater than the Energy Community does, particularly the suitability of conditions in Ohio for wind, solar and biomass energy production.

Barriers to Co-Generation and Waste Energy Recovery

| [On a 0 to 10 scale*] To what extent are each of the following a barrier to the adoption of combined heat and power (co-generation) or waste-energy recovery by your company? | | | | | | | | | |
|--|-----------------|------|-----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Lengthy payback timeframe | 7.5 | 2.6 | 101 | 7.4 | 2.1 | 49 | 7.5 | 2.8 | 77 |
| High upfront costs | 7.3 | 2.6 | 100 | 6.9 | 2.7 | 49 | 7.5 | 2.4 | 76 |
| Operations and maintenance | 5.7 | 2.7 | 100 | 5.7 | 2.7 | 49 | 4.6 | 2.8 | 74 |
| Physical setting constraints | 5.2 | 2.9 | 98 | 5.6 | 2.8 | 47 | 5.1 | 3.0 | 76 |
| Regulatory barriers | 4.8 | 2.8 | 96 | 5.0 | 2.8 | 46 | 4.6 | 2.8 | 74 |
| Low reliability | 4.7 | 2.9 | 100 | 5.2 | 3.0 | 49 | 4.4 | 2.8 | 76 |
| Utility opposition | 3.8 | 2.9 | 98 | 4.0 | 3.0 | 49 | 3.6 | 2.8 | 74 |

* 0 (Not a barrier) – 10 (Extremely large barrier)

The barriers to co-generation and waste energy recovery are not as high as those impeding renewable energy adoption, but they are still substantive. The initial costs and lengthy payback time frame are again the largest barriers, with over three-quarters of the respondents citing them.

The Energy Community views the high upfront costs of co-generation and waste-energy recovery as a larger barrier than Key Contacts do, but the Key Contacts view most other barriers as greater than the Energy Community does. These differences were greatest for operations, maintenance and reliability, suggesting that Key Contacts may have lower trust in their ability to consistently generate energy from these sources.

Benefits of Adoption of Wind, Solar and Biomass

A majority of respondents say that cost reductions, environmental benefits, and onsite power generation are benefits of adoption wind, solar, and biomass, but they feel relatively neutral about their potential to hedge against future regulations or to provide public relations benefits. The Energy Community respondents view all the benefits as greater than the Key Contacts do, with the exception of onsite power generation (*see next page*).

| [On a 0 to 10 scale*] To what extent are each of the following a benefit of adopting renewable energy (wind, solar, biomass) in your company? | | | | | | | | | |
|--|-----------------|------|----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Cost reductions | 6.2 | 3.4 | 98 | 5.8 | 3.3 | 47 | 6.2 | 3.5 | 74 |
| Environmental benefits | 6.0 | 2.9 | 98 | 5.2 | 2.8 | 47 | 6.2 | 3.0 | 74 |
| Onsite power generation | 5.8 | 2.7 | 98 | 5.7 | 2.7 | 47 | 5.7 | 2.9 | 73 |
| Hedge against future regulations | 5.4 | 2.8 | 98 | 5.0 | 2.7 | 47 | 5.6 | 2.9 | 74 |
| Public relations benefits | 4.9 | 3.0 | 98 | 4.1 | 2.7 | 46 | 5.2 | 3.0 | 73 |

* 0 (Not a benefit) – 10 (Extremely important benefit)

Benefits of Co-Generation and Waste-Energy Recovery

Cost reductions and on-site power generation are seen as the primary benefits of co-generation and waste-energy recovery. Half the respondents believe there are environmental benefits. Public relations benefits are seen as least likely, with only 31 percent saying that co-generation or waste-energy recovery would provide them with a public relations benefit.

As with renewable energy generation, the benefits of co-generation and waste-recovery are viewed as greater by the Energy Community than by the Key Contacts.

| [On a 0 to 10 scale*] To what extent are each of the following a benefit of adopting combined heat and power (co-generation) or waste-energy recovery in your company? | | | | | | | | | |
|---|-----------------|------|----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Cost reductions | 6.1 | 3.2 | 95 | 6.0 | 3.1 | 45 | 6.3 | 3.2 | 72 |
| Onsite power generation | 5.5 | 2.9 | 95 | 5.2 | 3.1 | 45 | 5.7 | 2.9 | 72 |
| Environmental benefits | 5.1 | 2.9 | 95 | 4.5 | 2.8 | 45 | 5.2 | 2.9 | 72 |
| Hedge against future regulations | 5.0 | 2.9 | 95 | 4.7 | 3.0 | 45 | 5.4 | 2.8 | 72 |
| Public relations benefits | 4.4 | 2.8 | 95 | 3.7 | 2.6 | 45 | 4.7 | 2.7 | 72 |

* 0 (Not a benefit) – 10 (Extremely important benefit)

Satisfaction with Utility Energy-Efficiency Programs

| What is your level of satisfaction with the current energy efficiency programs offered by your utility? | | | | |
|---|----|-----------------|--------------|------------------|
| | | All Respondents | Key Contacts | Energy Community |
| <i>Very Dissatisfied</i> | -3 | 4% | 2% | 5% |
| <i>Dissatisfied</i> | -2 | 9% | 12% | 8% |
| <i>Somewhat Dissatisfied</i> | -1 | 13% | 20% | 11% |
| <i>Neutral</i> | 0 | 37% | 35% | 34% |
| <i>Somewhat Satisfied</i> | +1 | 14% | 18% | 14% |
| <i>Satisfied</i> | +2 | 24% | 13% | 28% |
| <i>Very Satisfied</i> | +3 | 0% | 0% | 0% |
| <i>Average</i> | | 0.2 | 0.0 | 0.3 |
| <i>Standard Deviation</i> | | 1.4 | 1.3 | 1.4 |
| <i>N</i> | | 104 | 51 | 79 |

Respondents' satisfaction with the energy efficiency programs offered by their utility varies widely: 38 percent say they are satisfied with the programs; 26 percent say they are dissatisfied; and 37 percent are neutral. None of the respondents say they are "very satisfied."

Members of the Energy Community tend to be more dissatisfied than Key Contacts are: 34% say they are dissatisfied, compared to 24 percent of the Key Contacts. (See the appendix for further clarification on why respondents are or are not satisfied with their utility's energy-efficiency programs.)

Time Frame for Returns on Energy Investments

| How quickly must energy investments have a positive return before the company would be willing to make the investment? | | | |
|--|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| <i>12 months or less</i> | 10% | 8% | 11% |
| <i>18 months</i> | 17% | 16% | 18% |
| <i>2 years</i> | 36% | 39% | 35% |
| <i>3 years</i> | 27% | 26% | 29% |
| <i>More than 3 years</i> | 5% | 8% | 4% |
| <i>Don't know</i> | 5% | 4% | 4% |
| <i>N</i> | 105 | 51 | 80 |

Close to two-thirds of respondents (63%) say that energy investments must have a positive return in two years or less. Twenty-seven percent are willing to wait three years for positive returns, but only five percent are willing to wait longer than that.

Energy Conservation Programs

| Does your company currently have an energy reduction goal? | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Yes | 40% | 28% | 46% |
| No | 57% | 73% | 52% |
| Don't know | 3% | 0% | 3% |
| | | | |
| <i>N</i> | <i>104</i> | <i>51</i> | <i>79</i> |

Forty percent of the respondents say their company has an energy reduction goal. Energy Community members are much more likely to work at companies with an energy reduction goal – a difference of 18 percentage points.

*Percentages may not total 100 due to rounding

The primary motivation for energy reduction goals is to reduce the company's energy costs, with an average score of 8.8 out of 10. Environmental benefits are also an important motivation, with an average score of 7.2 out of 10 (and only 11 percent say it's not a motivation for their company's reduction goals).

| [On a 0 to 10 scale*] To what extent are each of the following a motivation for your company's energy reduction goal? | | | | | | | | | |
|--|-----------------|------|----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Cost reductions | 8.8 | 1.7 | 41 | 8.2 | 1.9 | 14 | 8.9 | 1.7 | 35 |
| Environmental benefits | 7.2 | 2.3 | 41 | 5.4 | 2.2 | 14 | 7.6 | 2.0 | 35 |
| Public relations value | 6.3 | 2.7 | 41 | 5.2 | 2.4 | 14 | 6.3 | 2.7 | 35 |
| Hedge against future regulations | 6.0 | 2.9 | 40 | 5.9 | 2.9 | 13 | 5.9 | 3.0 | 35 |
| Protect against natural resource or supply chain risks | 6.0 | 2.3 | 41 | 6.1 | 2.0 | 14 | 5.9 | 2.3 | 35 |

* 0 (Not a motivation) – 10 (Extremely important motivation)

The Energy Community members are more likely to state that cost reductions, environmental benefits and public relations are motivations for their energy reduction goals. The difference on environmental benefits is quite large: 2.2 points on the 0-10 scale.

Carbon Reduction Goals

| Does your company currently have a carbon reduction goal? | | | |
|--|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Yes | 23% | 14% | 25% |
| No | 73% | 82% | 72% |
| Don't know | 4% | 4% | 3% |
| | | | |
| <i>N</i> | <i>104</i> | <i>51</i> | <i>79</i> |

Close to a quarter of the respondents' companies (23%) have a carbon reduction goal. The primary motivation for these programs is the environmental benefits they provide; public relations and cost reductions are also important motivators. These results should be interpreted cautiously, however, because only 24 respondents work for companies with carbon reduction goals, so the sample size is very small (3 participants who indicated their company had a carbon reduction goal chose not to respond to the motivational question, so the effective sample size for all respondents is 21).

| [On a 0 to 10 scale*] To what extent are each of the following a motivation for your company's carbon reduction goal? | | | | | | | | | |
|--|-----------------|------|----|--------------|------|---|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Environmental benefits | 8.8 | 1.5 | 21 | 7.2 | 1.3 | 6 | 9.0 | 1.5 | 18 |
| Public relations value | 8.3 | 1.6 | 21 | 7.0 | 1.4 | 6 | 8.4 | 1.6 | 18 |
| Cost reductions | 7.5 | 2.3 | 21 | 6.5 | 1.0 | 6 | 7.6 | 2.4 | 18 |
| Protect against natural resource or supply chain risks | 6 | 2.7 | 21 | 5.7 | 1.5 | 6 | 5.8 | 2.9 | 18 |
| Hedge against future regulations | 5.7 | 2.8 | 21 | 5.0 | 3.0 | 6 | 5.8 | 2.6 | 18 |
| Onsite power generation | 3.4 | 2.8 | 21 | 3.0 | 2.2 | 6 | 3.4 | 2.9 | 18 |

* 0 (Not a motivation) – 10 (Extremely important motivation)

Energy Community respondents are more likely to work for a company with a carbon reduction goal than Key Contacts are, and they are more likely to cite all motivations in the survey as reasons for their companies' goals, with the single exception of protecting against natural resource or supply chain risks. These results are based on a very low number of responses – particularly among the Key Contacts (N=6), but the patterns are consistent with differences between the two groups found throughout the survey.

Relationships with Companies that Have Energy or Carbon Reduction Goals

| Is your company a supplier to another company with an energy or carbon reduction goal? | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Yes | 29% | 24% | 29% |
| No | 35% | 39% | 34% |
| Don't know | 37% | 37% | 37% |
| | | | |
| <i>N</i> | 104 | 51 | 79 |

Close to 30 percent (29%) of respondents' companies are suppliers to a company with energy or carbon reduction goals.

| Are you required to report to that company about your company's energy use or carbon emissions? | | | |
|--|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Yes | 37% | 33% | 39% |
| No | 57% | 67% | 52% |
| Don't know | 7% | 0% | 9% |
| | | | |
| <i>N</i> | 30 | 12 | 23 |

Over a third (37%) of respondents' companies that operate as suppliers are required to report to the other company on their energy use or carbon emissions; over half are not (57%). These results are based on only 30 respondents, and should be interpreted cautiously.

| Does your company manufacture or supply parts to companies that produce renewable energy, energy-efficiency or distributed generation products? | | | |
|--|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Yes | 25% | 26% | 22% |
| No | 64% | 66% | 65% |
| Don't know | 11% | 8% | 13% |
| | | | |
| <i>N</i> | 102 | 50 | 77 |

A quarter of respondents' companies (25%) manufacture or supply parts to companies that produce renewable energy, or that create energy efficient or distributed generation products.

Perceptions of Companies that Are Reducing Emissions and Adopting Renewable Energy

Respondents' impressions of companies that are moving to sustainable energy sources are largely positive. While sixty percent (62%) say that these companies are trying to make a good impression on the public, few believe they are being financially irresponsible (11%) or unwise (7%). Forty percent believe these companies are admirable, and two-thirds (65%) say they are environmentally responsible.

A third (33%) believe these companies are profitable, and another 50 percent say they may be profitable; only 17 percent believe they are not profitable. Half believe these companies are making investments that will result in cost reductions in the future (51%)

| [On a 1 to 5 scale*] A company that is reducing its carbon emissions and moving to renewable energy sources is likely to be... | | | | | | | | | |
|---|-----------------|------|-----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Trying to make a good impression on the public | 3.7 | 0.8 | 102 | 3.6 | 0.7 | 50 | 3.7 | 0.9 | 78 |
| Innovative | 3.6 | 0.9 | 101 | 3.4 | 0.8 | 49 | 3.7 | 0.9 | 78 |
| Environmentally responsible in its practices | 4.7 | 0.9 | 102 | 3.6 | 0.8 | 50 | 3.7 | 0.9 | 78 |
| Making investments now that will save it money in the future | 3.4 | 1.0 | 102 | 3.1 | 0.9 | 50 | 3.5 | 1.0 | 78 |
| Admirable | 3.3 | 0.9 | 101 | 3.1 | 0.9 | 49 | 3.4 | 0.9 | 78 |
| Profitable | 3.2 | 0.9 | 100 | 3.0 | 0.9 | 48 | 3.3 | 0.9 | 77 |
| Hedging against regulation | 3.3 | 0.9 | 102 | 3.2 | 0.8 | 50 | 3.3 | 0.9 | 78 |
| Protecting against natural resource or supply chain risks | 3.3 | 0.8 | 102 | 3.1 | 0.8 | 50 | 3.4 | 0.8 | 78 |
| Financially irresponsible | 2.4 | 0.9 | 102 | 2.5 | 0.9 | 50 | 2.4 | 1.0 | 78 |
| Unwise | 2.3 | 0.9 | 101 | 2.4 | 0.9 | 50 | 2.2 | 0.9 | 77 |

* 1 (Definitely not) – 5 (Definitely yes)

Energy Community respondents are somewhat more likely to say that companies moving to renewable energy are innovative, making investments that will save money in the future, admirable, profitable, and protecting themselves against risks.

PART III: POLICY OPTIONS

Energy Policy Priorities

Respondents' highest energy priorities are reliability with low and stable prices; over half say that having a reliable energy supply is extremely important (57%), resulting in an average score of 9 on a 10 point scale. Around 40 percent say that inexpensive and stable energy prices are extremely important, resulting in an average of 8.5 out of 10.

Majorities, however, believe all the dimensions of energy policy assessed here are important. Even the lowest rated priority – a clean energy supply – is rated as important by close to two-thirds of respondents (64%), as indicated by choosing responses within the top half of the response scale (i.e., 6-10). Only 17 percent of the respondents view clean energy supplies as unimportant, indicating that - despite being the least important energy priority of those assessed - clean energy is still viewed as an important organizing principle.

| [On a 0 to 10 scale*] Please indicate how important you believe each of the following organizing priorities are for Ohio manufacturers in regard to energy policy. | | | | | | | | | |
|---|-----------------|------|-----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Reliable energy supply | 9.0 | 1.3 | 102 | 8.8 | 1.5 | 51 | 9.2 | 1.3 | 77 |
| Stable energy prices | 8.5 | 1.7 | 101 | 8.5 | 1.4 | 51 | 8.8 | 1.4 | 76 |
| Least cost energy prices | 8.7 | 1.4 | 101 | 8.3 | 1.8 | 51 | 8.3 | 1.8 | 76 |
| Equity in energy costs+ | 7.6 | 2.2 | 100 | 7.4 | 2.1 | 50 | 7.7 | 2.1 | 76 |
| Domestic energy supply | 7.5 | 2.2 | 101 | 7.5 | 2.4 | 51 | 7.3 | 2.2 | 76 |
| Diverse energy supply | 6.8 | 2.4 | 102 | 6.2 | 2.5 | 51 | 6.9 | 2.2 | 77 |
| Clean energy supply | 6.5 | 2.3 | 101 | 6.4 | 2.4 | 50 | 6.4 | 2.2 | 76 |

* 0 (Not at all important) – 10 (Extremely important)

+ Equity in energy costs (ex., fair pricing between consumer and rate classes)

Energy Community respondents believe most of the organizing priorities are more important than Key Contacts do, including having a diverse and reliable energy supply, stable prices and equity in energy costs. Key Contacts are slightly more likely to say having a domestic energy supply is important.

Energy Regulation Policy Preferences

Approximately 60% of respondents say that shareholders should pay for environmental remediation, while only 10 percent believe that ratepayers should bear these costs. A quarter (28%) are unsure who should pay.

| Who should pay for the cost of environmental remediation of old utility assets, manufactured gas plants? | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Utility shareholders | 62% | 63% | 66% |
| Utility ratepayers | 10% | 14% | 7% |
| Unsure | 28% | 22% | 27% |
| | | | |
| N | 101 | 49 | 77 |

Respondents hold diverse views on cost recovery for deregulated power plants: A third say Ohio should deregulate and commit to a wholesale energy market (34%); a quarter say Ohio should create a hybrid model of partially regulated generation assets; and a quarter favor deregulation with consumer protection. Only three percent believe that power plants should be re-regulated if energy prices are either high or volatile.

Key Contacts are more likely than Energy Community respondents to say that Ohio should fully commit to deregulation and the wholesale energy market, while Energy Community respondents are more likely to feel that Ohio should only fully commit to deregulation if consumer protections and programs are in place.

| Ohio's electric investor-owned utilities are requesting cost recovery for their deregulated power plants. Ohio should: | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Fully commit to power-plant deregulation and the wholesale energy market | 34% | 39% | 32% |
| Re-regulate power plants | 12% | 14% | 13% |
| Create a hybrid model of partially regulated generation assets | 25% | 27% | 24% |
| Fully commit to electric generation deregulation, but only if consumer protections and programs are in place | 26% | 20% | 28% |
| Re-regulate power-plants, but only if energy prices are volatile or high | 3% | 0 | 4% |
| | | | |
| N | 96 | 57 | 72 |

*Percentages may not total 100 due to rounding

Two-thirds of respondents (65%) believe that utility shareholders should bear the costs of energy price spikes caused by extreme weather. Close to a quarter are unsure who should bear the costs (23%), while 12 percent believe shareholders should have to cover the cost of the price spike.

Extreme weather events like the "Polar Vortex" result in energy price spikes. If customers have fixed-rate contracts, who should pay the costs of these price spikes?

| | All Respondents | Key Contacts | Energy Community |
|----------------------|-----------------|--------------|------------------|
| Utility shareholders | 65% | 66% | 66% |
| Utility ratepayers | 12% | 12% | 11% |
| Unsure | 23% | 22% | 24% |
| | | | |
| <i>N</i> | 100 | 49 | 76 |

*Percentages may not total 100 due to rounding

The electric grid operator, PJM, pays for reduction in power consumption. Who should have control over how this resource is monetized?

| | All Respondents | Key Contacts | Energy Community |
|--------------------|-----------------|--------------|------------------|
| Electric utilities | 10% | 9% | 10% |
| Government | 7% | 6% | 8% |
| Third parties | 17% | 11% | 18% |
| Manufacturers | 24% | 28% | 24% |
| Unsure | 42% | 47% | 41% |
| | | | |
| <i>N</i> | 97 | 47 | 74 |

*Percentages may not total 100 due to rounding

Respondents hold diverse views regarding control of the monetization of reductions in power consumption, and forty percent are unsure who should have control. Among those who have an opinion, manufacturer control is preferred (24%).

Energy Community members are more likely to favor third party control than Key Contacts are, but the percentages in both groups favoring this option are low (less than 20%).

If a manufacturer reduces power use, and thus capacity, but does so by taking a utility rebate, who should own the capacity reduction?

| | All Respondents | Key Contacts | Energy Community |
|--------------------|-----------------|--------------|------------------|
| Electric utilities | 20% | 14% | 20% |
| Government | 1% | 2% | 1% |
| Manufacturers | 46% | 43% | 45% |
| Unsure | 33% | 41% | 34% |
| | | | |
| N | 100 | 46 | 74 |

Approximately half the respondents believe that manufacturers should own the capacity reduction if they reduce both their power use and capacity by taking a utility rebate. Close to a third (33%) are unsure, and 20 percent say the utility should own the capacity reduction.

If a manufacturer reduces electricity or fuel use, and thus carbon emissions, who should control how this emissions reduction value is monetized?

| | All Respondents | Key Contacts | Energy Community |
|--------------------|-----------------|--------------|------------------|
| Electric utilities | 5% | 4% | 5% |
| Government | 8% | 6% | 8% |
| Manufacturers | 58% | 63% | 58% |
| Unsure | 29% | 27% | 29% |
| | | | |
| N | 100 | 49 | 76 |

Close to sixty percent of the respondents believe manufacturers should control the monetization of reductions in carbon emissions; Key Contacts are more likely to hold this view than Energy Community members are. A quarter of the respondents (29%) are unsure who should have control, and the remainder are divided between utility and government control.

Half the respondents (50%) say that electric grid operators should recognize distributed power generation as a capacity resource for capacity and transmission planning. Eleven percent say operators should not and 39 percent are unsure.

Should electric grid operators (such as the PJM regional transmission organization) recognize distributed power generation, such as combined heat and power at manufacturing facilities, as a capacity resource for capacity and transmission planning?

| | All Respondents | Key Contacts | Energy Community |
|--------|-----------------|--------------|------------------|
| Yes | 50% | 46% | 50% |
| No | 11% | 11% | 12% |
| Unsure | 39% | 44% | 38% |
| | | | |
| N | 99 | 48 | 76 |

*Percentages may not total 100 due to rounding

Sixty-three percent of respondents say that allowing competitive efficiency programs would create consistent and low energy costs; a quarter (25%) believe that a credit system would achieve this objective, and 18% believe that regulatory cost tests by PUCO would.

| In Ohio, the cost for energy-efficiency varies significantly from utility to utility. Which of the following policies could create consistent and low costs? [Select all that apply] | | | |
|---|-----------------|--------------|------------------|
| | All Respondents | Key Contacts | Energy Community |
| Application of regulatory cost-tests by the PUCO | 18% | 14% | 20% |
| A legislative cap on the cost of energy-efficiency programs | 9% | 4% | 10% |
| Creating independent, 3rd party, but monopolistic, energy-efficiency programs | 11% | 9% | 11% |
| Allowing competitive efficiency programs | 63% | 63% | 61% |
| Creating a credit system for energy-efficiency, similar to that for renewable energy | 25% | 21% | 28% |
| | | | |
| N | 120 | 57 | 92 |

Key Contacts are slightly more likely than Energy Community respondents to favor competitive efficiency programs, while Energy Community respondents are more likely to favor regulatory cost tests, a legislative cap on costs, third party efficiency programs, and a credit system for energy efficiency.

Preferences for U.S. and Ohio Energy Policies

Tax credits for companies that install high efficiency equipment were perceived as beneficial for their company (average score of 4.0/5) and offshore drilling was also seen as beneficial (4.1/5). Tax credits for construction of new nuclear power plants were also seen as beneficial (3.7/5).

| [On a 1 to 5 scale*] How beneficial or harmful do you think each of the following policies are or would be for your company? | | | | | | | | | |
|---|-----------------|------|----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Regulation of carbon dioxide (the primary greenhouse gas) as a pollutant. | 2.0 | 1.1 | 94 | 1.9 | 1.1 | 47 | 2.0 | 1.0 | 71 |
| Creation of a new national market that allows companies to buy and sell the right to emit the greenhouse gases said to cause global warming (a cap-and-trade program). | 2.1 | 1.1 | 93 | 2.0 | 1.3 | 47 | 2.2 | 1.1 | 70 |
| Expansion of offshore drilling for oil and natural gas off the U.S. coast. | 4.1 | 0.8 | 95 | 4.2 | 0.8 | 47 | 4.0 | 0.8 | 72 |
| Providing tax credits for the construction of new nuclear power plants in Ohio. | 3.7 | 1.0 | 93 | 3.8 | 0.9 | 46 | 3.6 | 1.0 | 71 |
| More research funding for renewable energy sources, such as solar and wind power. | 3.0 | 1.2 | 94 | 3.0 | 1.2 | 47 | 3.1 | 1.2 | 71 |
| Requiring companies that produce or import fossil fuels (coal, oil and natural gas) to pay a carbon tax of \$25 per ton of CO ₂ , which would be refunded to the public. | 2.1 | 1.2 | 95 | 2.0 | 1.1 | 47 | 2.2 | 1.2 | 72 |
| Providing tax credits for the installation of high efficiency equipment by companies. | 4.0 | 0.8 | 95 | 4.1 | 0.9 | 47 | 3.9 | 0.9 | 72 |
| Government rebates or tax credits to promote distributed generation (power that is generated onsite). | 3.6 | 0.8 | 94 | 3.5 | 0.8 | 47 | 3.6 | 0.9 | 71 |
| Diminishing the role of ratepayers in the electric regulation process by allowing utilities "sole discretion" over certain actions. | 1.8 | 0.9 | 94 | 2.0 | 0.9 | 47 | 1.8 | 0.9 | 71 |
| Reforming the US Tax Code by replacing 42 current energy tax incentives with an incentive each for electricity production and transportation fuels that are 25% cleaner than industry averages. | 3.3 | 1.0 | 92 | 3.3 | 1.0 | 47 | 3.3 | 0.9 | 69 |

*1 (Very harmful) – 5 (Very beneficial)

Opposition to both a carbon tax and a national cap-and-trade program is high: 66 percent say a carbon tax would be harmful to their company, and 62 percent say cap-and-trade would be harmful. Regulation of CO2 as a pollutant is also viewed very negatively, with 72 percent of respondents saying it would be harmful to their company.

Differences between the Energy Community and Key Contacts on policy preferences are small, but the Energy Community is somewhat less supportive of offshore drilling, building nuclear power plants, and tax credits for efficiency improvements, while the Energy Community respondents are somewhat more supportive of CO2 regulation, a carbon tax, and cap-and-trade.

Priority of Protecting Local Resources from Extreme Weather

Respondents are most concerned that the electricity system is protected from extreme weather, with an average of 7.9 out of 10. Majorities would prioritize protecting all of these resources, as indicated by averages above the mid-point on the scale (5).

| [On a 0 to 10 scale*] In your opinion, how much priority should Ohio's state and local governments give to protecting each of the following from extreme weather over the next 10 years? | | | | | | | | | |
|---|-----------------|------|----|--------------|------|----|------------------|------|----|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| The electricity system | 7.9 | 1.8 | 96 | 7.9 | 1.9 | 47 | 8.0 | 1.7 | 73 |
| Transportation, roads, & bridges | 7.6 | 1.7 | 96 | 7.8 | 1.8 | 47 | 7.7 | 1.6 | 73 |
| Water quality | 7.1 | 2.0 | 96 | 7.0 | 2.2 | 47 | 7.1 | 2 | 73 |
| Water availability | 6.8 | 2.2 | 96 | 6.8 | 2.4 | 47 | 6.8 | 2.1 | 73 |

* 0 (No priority) – 10 (Very high priority)

Political Influence and Energy Policy Decisions

The vast majority of respondents believe that electric utilities and large campaign contributors have large to moderate effects on elected officials' energy policy decisions (95% and 88%, respectively). Fossil fuel companies (coal, oil and natural gas) are believed to have a large to moderate effect on policy decisions by 84 percent of the respondents.

Environmentalists and renewable energy companies (solar, wind and geothermal) are believed to have less – but still substantial – influence: two-thirds (68%) of respondents believe environmentalists have a large to moderate effect on policy decisions, and close to half (48%) believe that renewable energy companies have a moderate to large effect.

| [On a 1 to 4 scale*] How much influence to you think each of the following groups have on the decisions Ohio's elected officials make about how to deal with energy issues? | | | | | | | | | |
|--|-----------------|-------------|----------|--------------|-------------|----------|------------------|-------------|----------|
| | All Respondents | | | Key Contacts | | | Energy Community | | |
| | Avg | S.D. | N | Avg | S.D. | N | Avg | S.D. | N |
| Electric utilities | 3.5 | 0.6 | 95 | 3.5 | 0.6 | 48 | 3.6 | 0.6 | 71 |
| Large campaign contributors | 3.4 | 0.8 | 94 | 3.4 | 0.8 | 47 | 3.4 | 0.8 | 70 |
| Coal, oil, and natural gas companies | 3.3 | 0.8 | 95 | 3.3 | 0.7 | 48 | 3.3 | 0.7 | 71 |
| Environmentalists | 2.8 | 0.8 | 96 | 3.0 | 0.7 | 48 | 2.7 | 0.8 | 72 |
| Solar, wind, and geothermal companies | 2.6 | 0.7 | 96 | 2.5 | 0.7 | 48 | 2.5 | 0.7 | 72 |
| Your industry | 2.3 | 0.8 | 95 | 2.2 | 0.8 | 48 | 2.3 | 0.7 | 71 |
| Independent research and experts | 2.4 | 0.6 | 94 | 2.5 | 0.7 | 47 | 2.4 | 0.6 | 70 |
| Your company | 1.7 | 0.7 | 95 | 1.5 | 0.7 | 48 | 1.8 | 0.7 | 71 |

* 1 (No effect at all) – 4 (A large effect)

STUDY METHODOLOGY

This study was conducted by George Mason University's Center for Climate Change Communication in partnership with The Ohio Manufacturers' Association and made possible by funding from the Energy Foundation to explore Ohio manufacturers' views on energy. The survey consisted of approximately 50 questions and took about 20 minutes to complete.

The survey was e-mailed to 805 members of The Ohio Manufacturers' Association (excluding 9 members whose e-mails bounced). The survey was fielded from September 22nd to October 17th, 2014. Respondents were sent up to five e-mail and two mailed postcards as invitations and reminders to participate in the survey. Respondents who completed the survey were removed from subsequent invitation and reminder lists.

A total of 120 individuals participated, from 100 companies. Given the low number of respondents who came from the same company (one company had 4 respondents, four companies had 3 respondents, nine companies had 2 respondents, and the other eighty-six companies each had only one respondent), data were analyzed at the respondent level.

Respondents to this survey were sampled from two groups: "Key Contacts" and participants in the OMA "Energy Community." *Key Contacts* are the lead person designated by OMA member companies to interact with OMA (one contact per company). *Energy Community* participants are people from member companies that OMA has identified as being interested in energy (as indicated by attending OMA-sponsored workshops on energy, requesting information from OMA on the topic, etc); each member company can have multiple people in the *Energy Community*. As such, the *Key Contacts* results can be interpreted as representative of OMA members as a whole, while the *Energy Community* results can be interpreted as representing this OMA group with special interest in energy. Among the 404 *Key Contacts* contacted, 15% (57 participants) responded. Among the 541 members of the *Energy Community* contacted, 17% (92 participants) responded. 30 participants were involved in both the *Energy Community* and *Key Contacts* groups.

APPENDIX

The following are responses to open-ended questions designed to probe respondents' thoughts about the viability of onsite generation and about their satisfaction with their utility's energy efficiency programs.

Reasons Onsite Generation Is Not Viable

- Physical resources required and funding required are not available in our business plan.
- almost no payback from many of these, and we don't have hydro, wind nor sufficient sun.
- Budget constraints, and general return on capital
- Capacity demand is too high for battery storage and no viable source of hydroelectric.
- capital expense and uninformed about them
- Cost and lack of impact
- Cost benefit for solar in the region that we work in.
- Cost benefit ratio for those type of energy options
- cost for financial benefit
- Cost prohibitive or unavailable
- Cost, O&M is non-core to business, cost-effectiveness is not sufficient, long ROI
- Cost. Unless technology changes, these alternatives simply aren't yet cost effective.
- costly / benefit
- Do not currently have and capitol cost to install not worth return today. Also making power is not core business.
- Don't have the infrastructure or personnel to handle something like what is listed above. Have already looked at a few (wind) and it is NOT economically feasible for payback.
- Due to size of company and business operating a low profit margins typical of our industry, I do not see that we would pursue these options.
- DUE TO THE LANDSCAPE THAT SURROUND THE FACILITY TOO MANY TREES AND NO AVAILABLE WATER SOURCE
- Economic payback for non-viable options greater then threshold set by corporate budgeting
- High cost of wind and solar. Energy storage and backup generators are not feasible.
- Hydroelectric - facility not located near a source of hydroelectric power. Solar - costs, capacity uncertainty and performance concerns. Backup generators - environmental permitting and reporting. Energy storage - costs, capacity uncertainty and performance concerns. Biomass - costs to implement; viable and sustainable source of biomass.
- I don't have enough familiarity on this particular part of our production, but these topics I listed below 5 are not ones I've heard discussed within our company.
- I'm not familiar with any ways that we could use hydroelectric power to replace any portion of our existing energy demand.
- In our geographical area, they do not appear to be applicable and/or the economic justification would not be there. Ours is a low margin business. We are very careful on project selection.

- Infrastructure doesn't exist.
- INITIAL INVESTMENT COSTS AVAILABILITY
- Insufficient financial requirements
- land and space availability
- Limited Access to hydro power
- Local government zoning laws
- Location and Industrial Park restrictions
- low process thermal requirements year round
- No access to enough/any low cost water to be beneficial.
- No adequate payback.
- No available land for wind turbine. Too many residences located near factory. No water available for hydro.
- No possibility of hydro power onsite.
- No running water sources nearby, not very windy
- No water
- No water power close, ROI on wind is poor, plus we are close to airport and precludes tower
- No water resources on property
- No water source close by and wind energy was explored and abandoned upon USDA Protection stance for area bald eagles.
- No water source for hydroelectric.
- No waterfalls nearby
- None of those are really viable for industrial electricity consumers except waste heat recovery or combined heat and power.
- Not available in our area.
- Not cost effective
- Not cost effective or sustainable without huge tax subsidies
- Not economical
- Not efficient solutions, limited space available, poor aesthetics for neighborhood
- Not financially viable
- not lots of sun in NE ohio
- Not on a river. Wind turbines make too much noise for neighbors.
- Not sure where we would access hydroelectric at our facilities in Ohio
- nothing close to us with these capabilities
- Our company conducted cost benefit analysis on several of these and found the initial cost and ongoing operational cost to far outweigh the advantages.
- Our electricity usage is beyond the ability of the options listed
- projects do not provide good return on investment.
- Require more electricity than feasible with battery storage. Not located near moving water with magnitudes capable of producing electric. Do not have the area needed to install a solar field.
- Site characteristics does not provide reasonable provision for these technologies.
- Solar is not very efficient considering sun time in Ohio, also wind can be unpredictable.

- There are no facilities along rivers where the permitting process would be workable or the hydraulics.
- There are no running water resources near our facilities to generate hydroelectric power.
- They do not make economic sense.
- We actually investigated manufacturing solar and consider the economics to be negative for sustainable use. We use too much energy for storage to be an option. Biomass we should not be using potential food production to produce energy.
- we are not near a source of hydroelectric
- we are on the edge of a suburban area. and, we are not a big energy user. our only on site option would be if Utica Shale Gas was found under our property. we would then invest in a gas well to fuel our needs.
- We are on top of a hill and thus there is no water available for miles.
- We do not have the money. We are a very small family owned and operated business.
- We use energy provided by the City of Hamilton - one of the few monopoly locations in Ohio. Our provider does not include these options and we can't choose otherwise
- We use large amounts of electricity. To supply that electricity with alternate energy (biomass, wind, hydro, solar) would be prohibitively expensive and would also require backup.
- Wind - have checked with consultant, too much turbulence from surroundings Solar - investment too large for benefit Hydroelectric - no water source
- wind - not enough space solar - too expensive waste heat recovery / co gen - hard to make work in our processes b/c we don't have a need for steam offtake in most cases
- wind = not in Wayne County, Ohio Hydro = no Dams near my shop Biomass = from what? Solar = 94.5% of office is solar 0% of factory is Solar We need about 5 acres of panels at \$1,000,000. per acre, I don't think so.
- wind- we are not located in an area that would be a huge benefit for wind turbines
- Would need additional information regarding technology and associated costs.

Please describe why you are dissatisfied with the current energy efficiency programs offered by your utility.

- Difficult to maneuver.
- Don't believe AEP is efficient in managing their program.
- First Energy and the republican government destroyed the Ohio incentive program as part of their nationwide agenda. I assume led by big energy.
- Government is a joke!
- I am dissatisfied because I do not know what these programs currently are. Since I do not know what they are then they must not be advertised and explained well enough.
- I do not believe they offer any/
- I was and am treated like I am a crook !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
- It's a municipal power system, and I am unaware of any such programs offered. However, their rates are quite good.
- No energy efficiency programs are offered
- Not cost effective for us.
- not well publicized
- nothing new, no real areas to improve upon
- On a municipal system that does not offer the same extent as publicly held utilities.
- The cost benefit has not been realized as the savings was all paper because of the increase in the unit cost. Additionally, the program appears to provide more incentive to the utility as they retain the reduced incremental value associated with not having to construct more generation.
- The most recent energy efficiency project resulted in lower spend but the increased utility costs made the finished project impossible to defend with the finance team.
- The one program we participated resulted in less than anticipated savings and a much lengthened payback.
- The only one offered was a lighting program. When we elected to go forward with it, OE changed the rules and pulled most of the financial support they originally offered.
- THE UTILITY COMPANY ISN'T PROACTIVE IN WORKING WITH AREA BUSINESSES TO EDUCATE TO WHATS AVAILABLE
- The utility does not strike me as being proactive or terribly easy to engage with on these subjects.
- There are none
- They are not aggressive in promoting or informing customers about programs.
- They are not very proactive and we are not contacted to do anything.
- Too much volatility in programs and legislation. Difficult to plan longer term projects.
- Use a municipal electric distribution. Benefits offered do not meet those of AEP that are not available to us.
- We pay much more into their program than we can ever recover in rebates. We had the unpleasant experience of having a project denied and had to "fight" to get the

rebate.

- What are they?

Please describe why you are satisfied with (or feel neutral about) the current energy efficiency programs offered by your utility.

- AEP actively engages our largest mfg plant in programs and rebate opportunities. However, the same support is not actively engaging our other locations.
- As the controller for the facility I am not in the best position at this time to comment as I am not completely familiar with what is offered or not. Our head of engineering would likely know more than I.
- CEI program through AEP has been a great resource for improving efficiency by implementing low to no cost energy solutions. Capital projects have been harder to implement due to budget constraints.
- Combined rates for electric and natural gas
- Current programs help incentivize capital investments to reduce energy footprint and have been somewhat a focus on the Utility.
- Ease of use, significant rebates
- Energy efficiency is not the responsibility of the local utility. They offer what they can to benefit themselves. Each business has to determine what makes sense for themselves.
- fairly generous and for equipment most need or can replace. Incentives drive most energy efficiency projects as payback when compared to production projects, energy projects cannot compete.
- Fairly good reliability. Low costs.
- Financial assistance with electric conservation investments.
- for the amount of work and reporting the benefit is not high enough
- Good notifications of programs available. Easy to work with.
- Have provided financial incentive on several projects, not sure how much impact it had on getting funds approved but it certainly helped
- I believe incentives are enough to push start cap-ex projects. Real benefits to companies come in the future with using less energy. Companies must spend to future or pay thru increased consumption.
- I don't have any problems with them
- I find them to be satisfactory, but they could offer more.
- It is very difficult for us to take advantage of the programs. Basically, we pay in, but get no benefit.
- Limited knowledge of offerings
- n/a
- Newer program that we recently received information on; not a lot of financial assistance.
- Not a lot applies to us since we don't use huge amounts

- Not aware of too many
- Not enough or ease of access
- Offered rebates for energy efficiency improvements.
- Offerings are limited
- One-half of our total electrical usage is for lights and our utility assisted with rebates in going to more efficient lighting.
- Only offer Demand Response
- Our company has inputs into both the advanced and fossil fuel energy industry. We are well situated regardless of changes.
- Pricing appears to be at low end of market range for services
- proactively, the provider contacts us about programs
- Program rebates are suitable for our industry.
- Programs are in place to assist with VSD, wind energy and the like. The hardship is in the amount of paperwork necessary to qualify.
- Rebate programs for demand response options
- Rebates offered
- Seems like we have gained from the low hanging fruit on lighting and large motor start ups but little offered after that from the utilities
- The utility is mandated by regulations to improve energy efficiency and has acted as a financial partner in allowing the business to make significant strides in reducing energy use.
- There are limited programs offered.
- They are doing what they can under the constraints of Ohio weather and environment
- they are not much of a help
- They are not offering any real options to pursue.
- they are proactive regarding energy rebate programs
- they have incentive for investment in electrical energy savings.
- They provide a wide range of options for manufacturers.
- They provided a nice rebate program that made the difference in us upgrading lighting in the past year.
- They seem to be behind the movement and offer a fair rebate. They have also contacted us directly and put our energy team through training with a rebate to boot.
- Was able to utilize the program and more than offset premiums.
- We are at the point of "it is what it is" the utility companies are in charge. We need the energy to operate business, we need energy to live our lives, therefore you pay what you have to and continue on.
- We are not a major consumer so we have limited issues here.
- We do not have the knowledge or money to have an educated opinion.
- We have continuous programs in place per our policies.
- we have invested where it has made sense.

- We have three locations on two different utility providers. One is very proactive and offers programs to upgrade efficiency and demand response, one does nothing (it's a COOP)
- wide range of programs, CEI program