



Common ground. Common good.

Electrical Energy Workshop Summary

At Worksite

June 5, 2012

1-hour workshop

Participants: 25

Workshop activities

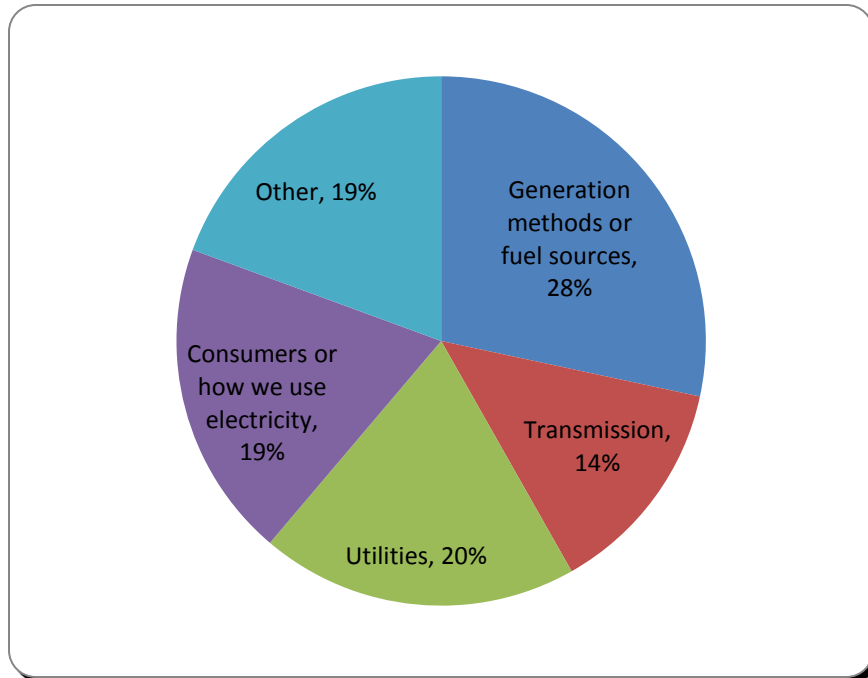
Who/what is impacted by electricity in Minnesota?

Answers included:

- Utilities, including city and rural utilities
- MISO
- Residential consumers
- Businesses
- Rural consumers
- Farms/agriculture
- Schools
- Industry/manufacturing
- Communications/information flow (computers, internet, TV, radio)
- Comfort (Heat/AC)
- Health/Life Safety (Hospitals, life support)
- Security and Safety (traffic controls, police)
- Productivity
- Climate change
- Criteria pollutants emissions
- Resource consumption
- Nuclear waste generation
- Health
- Commercial buildings
- Public/government buildings
- Manufacturer of electrical power systems supply
- Renewable companies
- Production facilities
- Transportation
- Hotels
- Events/entertainment
- Infrastructure
- Emergency systems
- Economy
- Food
- Development
- Education
- Research and development
- Everyone

Transformational Change

What did your transformation deal with? Choose all that apply.



Other

- Energy storage
- Barriers to success – oil and gas companies; decentralized renewable generation and sustainable installations
- Political support to change; economic disincentive (ethanol subsidy) – go away; energy storage – a breakthrough; self-sufficient – lose loss; decentralize energy production – more self-sufficient

Written descriptions:

- Clear standards and equipment that can reduce the single job/customization aspect (engineering Overhead Burden) of generating electricity and connecting to the grid.
- Pricing model that will easily compensate those who feed electricity to grid for real time cost of electricity
- Political support for change
- Point source production and storage
- Energy storage is needed to allow the use of intermittent renewable sources
- Introduce legislation that reduces entry barriers
- Solar power: seasonal, daily, energy storage, larger batteries, hydro pumps; poor efficiency; limit to interconnect standards, no incentives, rebates, utility barriers. CHP rewards, Bio gas, Nuclear (new), greater volumes of natural gas, how long productive are the fracturing wells, wells decay fast, storage of. No transmission losses, each building produce their own, everyone sustainable.

- Fusion, individual households and businesses produce own energy (like geothermal for heat), storage, expand solar/wind
- Efficiency (engines, appliances etc.) more dependencies on renewable energy, smarter grids, energy/battery storage, cheap
- Cold fusion, perpetual motion, more renewable sources available to consumers
- Solar and wind power on all houses
- Global infrastructure
- Energy storage improvements
- Alternative fuels
- Power generation becomes so efficient and controllable that every source is capable of generating just the amount of power needed locally
- Clean and endless supply of fuel
- Renewable source very decentralized sources with efficient electronics—technology is at present to make each household/industry produce enough to be sustainable—not enough R&D to develop it
- Completely decentralized, efficient appliances

What makes it difficult/impossible?

Answers included:

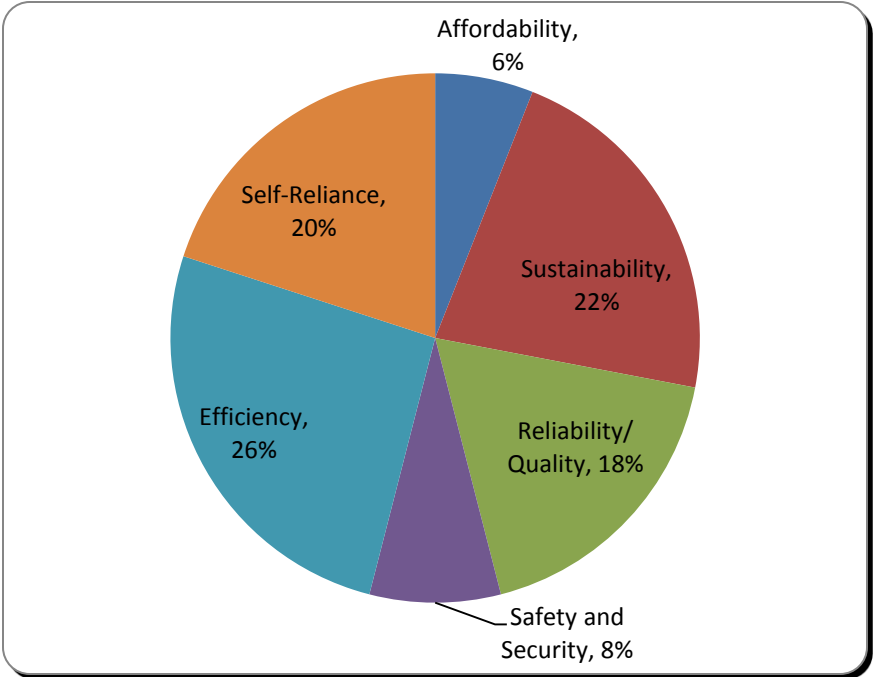
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|---|--|
| <ul style="list-style-type: none"> • Utility and other interested parties protecting turf. • Investor payback time for clean technologies • Technology • Scale of demand vs. technology to produce or store. • Utility barriers • Policy • Economics | <ul style="list-style-type: none"> • People don't want to change • Laws of physics • Political/population • Global – logistically difficult • Acceptance • Cost • Scale • Consumerism – no combined strategy for all different sectors • Not enough R&D |
|---|--|

Top Priority

Answers included:

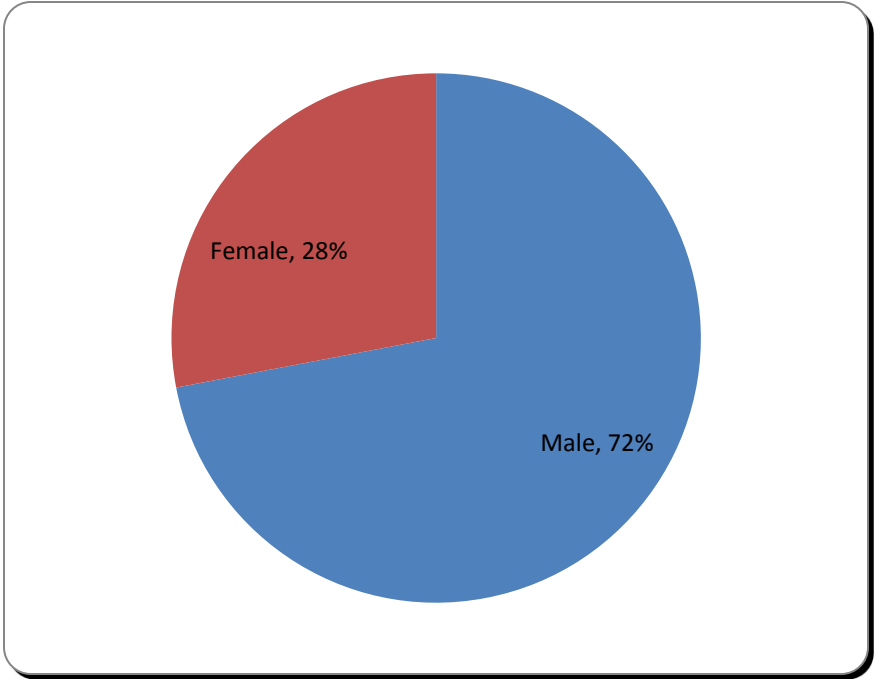
- Political support for change
- Environmental impacts
- Conservation
- Sustainability
- Utility barriers
- Infrastructure, inefficient transmission, local energy – reduce infrastructure, transmission aging

Which outcome(s) does your top priority address? Choose all that apply.

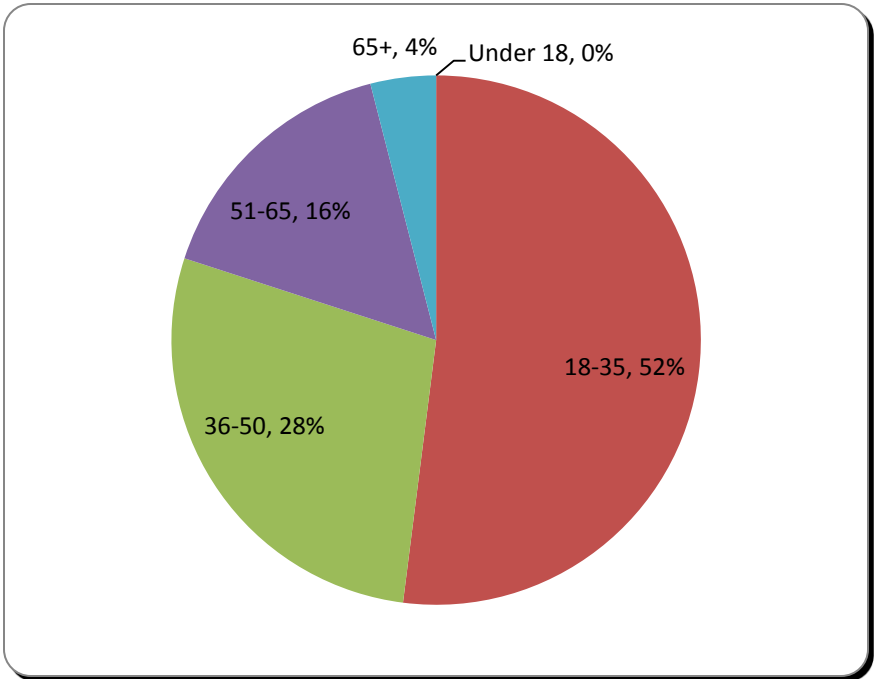


Demographics

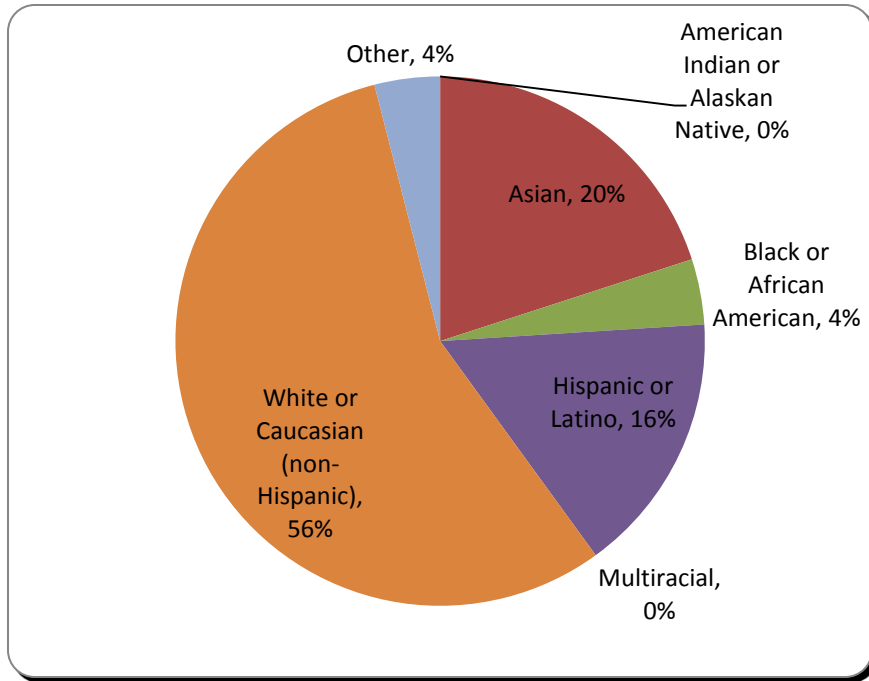
What is your gender?



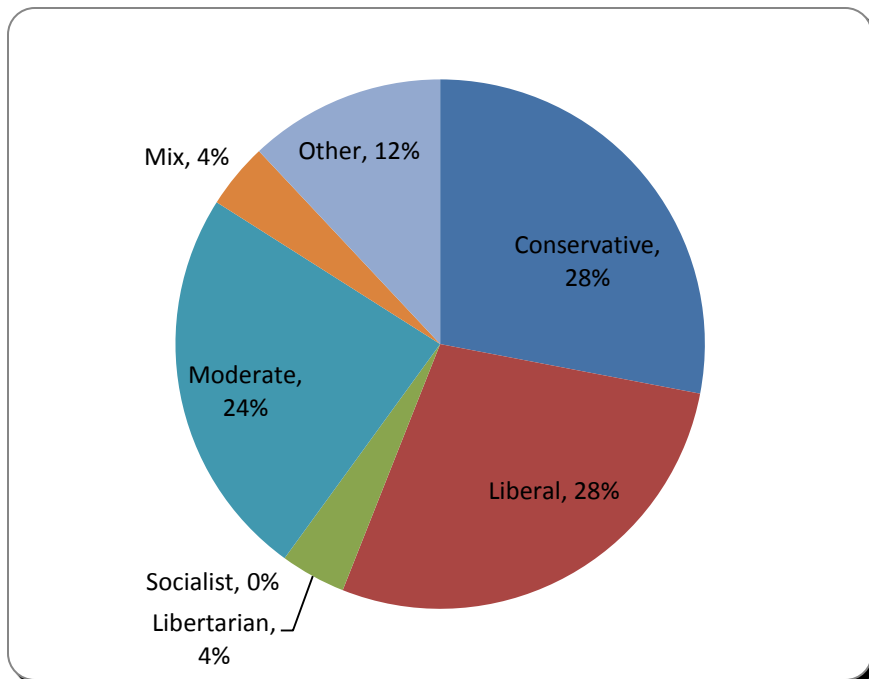
How old are you?



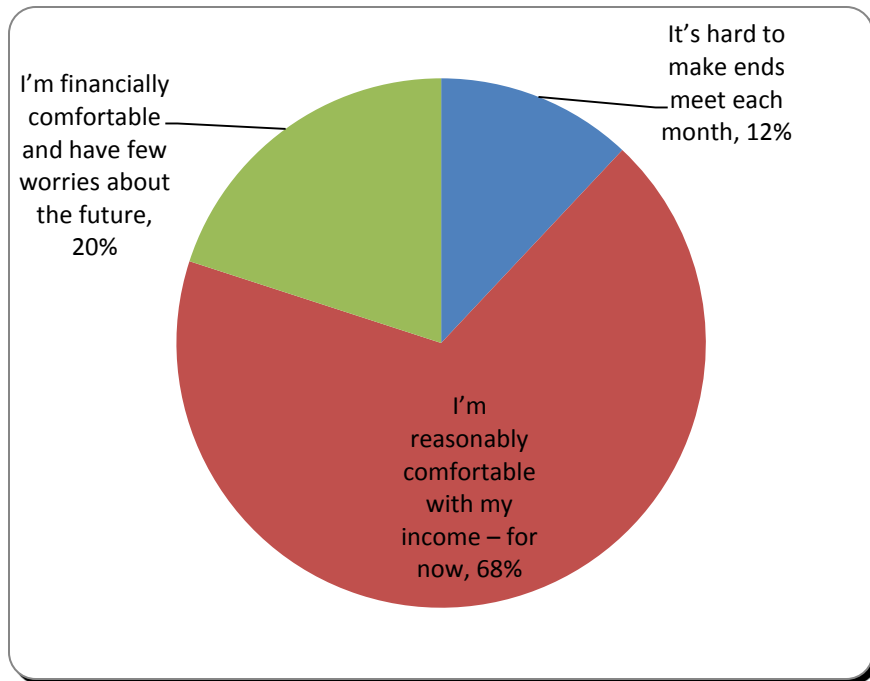
What ethnicity best represents you?



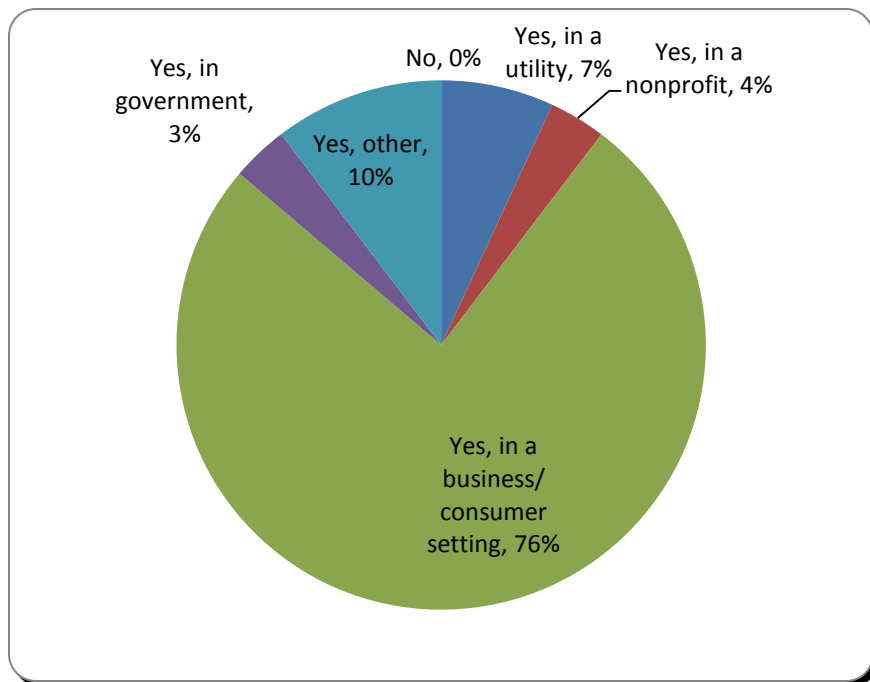
What best describes your political leanings?



Which of these statements about income best represents you?



Are you or have you ever been employed or a volunteer in the energy field? Choose all that apply.



**Participant Evaluation of Workshop
(Average of all participant surveys)**

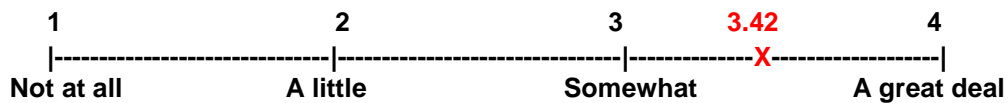
1.) Did you enjoy participating in today's discussion?



2.) How much did you learn from the information presented today?



3.) How much did the table discussion help you think through the issues?



4.) Please share any insights you gained from tonight's workshop.

- Interesting to see some of the Minnesota trends. Would be interested in learning more about Minnesota energy policy. Good discussion questions.
- It was more interesting and easier than I thought
- Everyone feels sustainability and self-reliance are the ultimate goals.