DELAWARE
EEAC
Energy Efficiency
Advisory Council

Trends in Energy Efficiency 2021

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Optimal ENERGY Integrated Energy Resources

Trends in EE

- **Trends in energy efficiency and beyond are shaping what future programs will look like**
- **Impact what types of technologies and services are offered through efficiency programs as well as who/what the programs target:**
  - Climate action planning
  - Equity
  - Active Demand Management
  - Changes to C&I Lighting
  - Work Force Development

What is Climate Action Planning and why is it Important for Energy Efficiency?

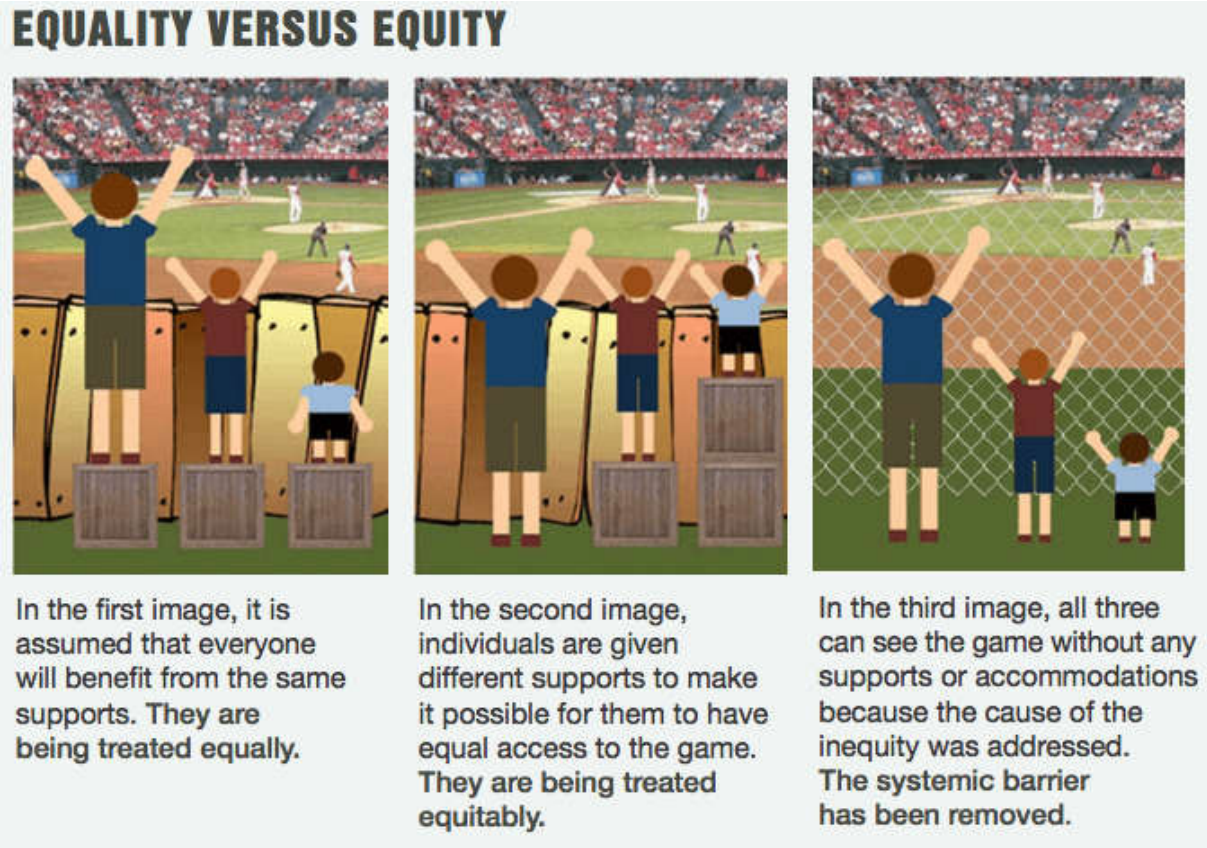
- Climate Action Plans are road maps that describes the specific activities that an entity (i.e. a state) will undertake to reduce greenhouse gas emissions
- Climate Action Plans in many states include energy efficiency as a key strategy for achieving its goals
- As a result, tracking and reporting emissions reductions in addition to energy savings is becoming a focus in energy efficiency programs
- Work is often needed to ensure energy efficiency programs and targets align with policy objectives in Climate Action Plans
- Efficiency program focus likely to be on deeper savings measures and electrification

Climate Action Plan Example

- As presented by DNREC to the EEAC in July, Delaware is in the process of finalizing its climate action plan
- Goal of reducing greenhouse gas emissions significantly from 2005 levels by 2025
- DE Climate Action Plan will include solutions in a variety of areas including energy efficiency

What is Equity?

- Fairness and equality in outcomes, not just in supports and opportunity.



Source: https://www.cawi-ivtf.org/sites/default/files/publications/advancing-equity-inclusion-web_0.pdf

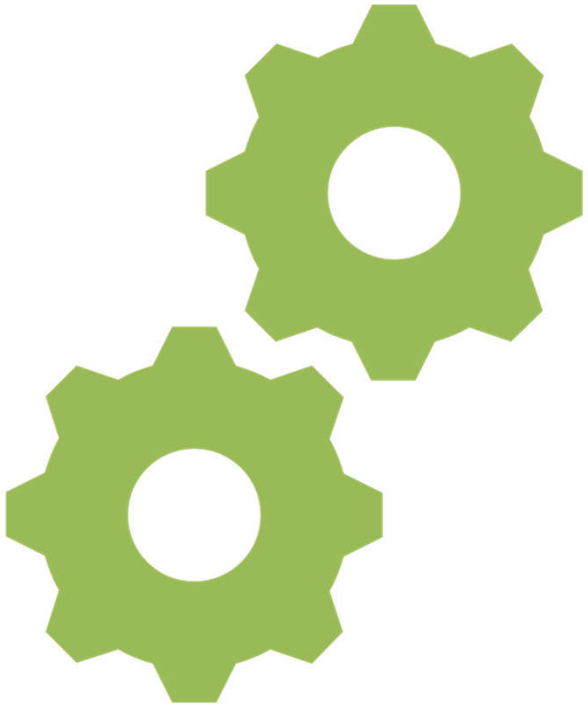
What is Equity in Energy Efficiency?

- In energy efficiency, equity is about ensuring that all residents and businesses are adequately served by efficiency programs, including those who historically have not been:
  - Low and moderate income customers
  - Renters
  - Non-English speakers
  - Small businesses

- This means addressing barriers and challenges that have impacted specific communities

Why is Equity in Energy Efficiency Important?

- Many customers pay for energy efficiency services, but don't receive the benefits from them
- Efficiency programs can improve health and comfort and create jobs for those in disadvantaged communities
- Low-income families, renters, and people of color often pay more in energy costs than other households
- Climate change will disproportionately affect some communities and energy efficiency can help alleviate these disparities



Example of Strategies for Achieving Equity in Energy Efficiency

Developing programs designed to reach all customers (i.e. low income and small business programs)

Ensuring programs overcome barriers needed to reach all customers (i.e. offer program materials in multiple languages)

Making equity a component of utility performance incentives

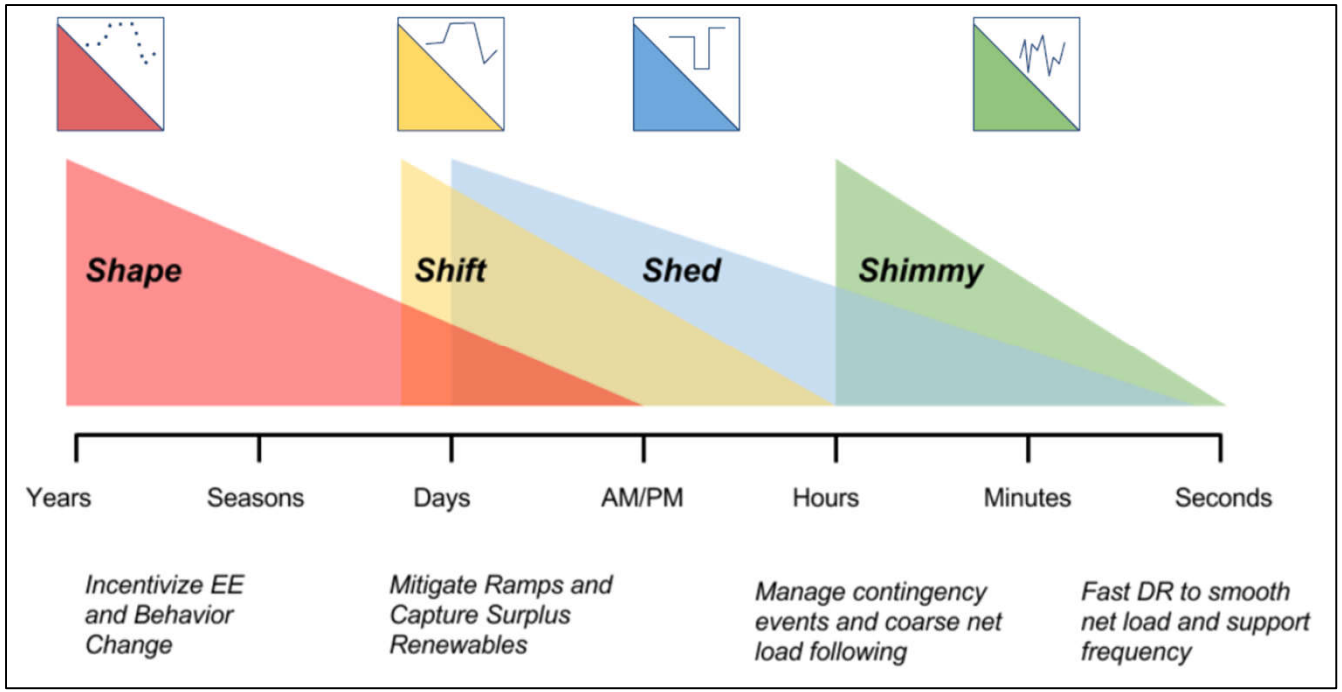
Allocating a percent of budget for certain qualifying customers

Increasing diversity in the EE workforce

Forming stakeholder working groups to focus on equity issues

What is Active Demand Management (ADM)?

- ADM refers to the dynamic management of end-use customers' energy demand using information, incentives, and technology to help ease a constrained grid
- Often focused on reducing peak electric used, but Gas ADM also be a focus for regions with gas constraints



Why is Active Demand Management important?

- Reduces emissions since dirtier fuel sources come online during peak times
- Balances reliability
- Mitigates price volatility

- Avoids additional investments in energy generation and peak capacity
- Defers investments in transmission and distribution infrastructure

Active Demand Management Examples

Wi-fi connected thermostats can be remotely accessed to reduce air conditioning load at peak hours

Battery Storage can store energy during off-peak hours and discharge them during peak hours

Utilities can reward **electric vehicle** owners for giving utilities limited direct control of their charging during peak demand events.

What is Electrification?

- Converting end-uses that currently use fossil fuels to electricity instead
  - Also referred to as “strategic” or “beneficial” electrification
- Electrification improves efficiency and to helps reduce total energy usage
  - Primary focus often on space-heating, but also opportunities to electrify water-heating, and cooking
  - Also includes transportation

Why is Electrification Important?

- In addition to energy savings targets, many states have enacted GHG emissions reductions targets
  - Electrification is a key strategy for achieving those goals
  - As the electric grid becomes cleaner and more renewable energy sources generate power, GHG emissions from electric use decline

- Electrification can also provide cost savings to customers

Electrification Examples

Heat Pumps can replace traditional fossil fuel boiler and furnaces

Electric stoves can be used instead of gas stoves

New buildings can be designed to be completely electric based – often being extremely cost effective

What is the Future of C&I Lighting?

- Over the past several years the C&I lighting market has been transforming
  - The screw-in lamp market is already mostly converted
  - Linear market is the big opportunity going forward

Why is The Future of C&I Lighting Important?

- Lighting has traditionally been a core competent of energy efficiency programs
  - Installing new, uncontrolled LEDs today misses the opportunity for additional savings in the future
  - Emphasizing lighting controls can expand the size and duration of continued claimable lighting savings
- Controls offer additional benefits
  - Occupant comfort enhancements through lighting level tuning
  - Integration w/ other building systems
  - Asset tracking

Lighting Controls Examples

Dimmer Switches-allows for light to be reduced rather than just turned on/off

Occupancy Sensors-turn on the lights when someone enters a room and turns off after a period of time without movement

Motion Sensors-turns on light when movement is detected and turns off after a certain period of time without motion

Daylight sensing – enables dimming in spaces that receive plentiful natural light from windows, skylights, lobby atriums, etc.

What is Workforce Development?

- Taking an active role in creating a more capable workforce for a given industry
- WFD often involves partnerships with vocational and trade schools, apprenticeship programs, and continuing education/certifications for existing workers

Why is Workforce Development Important?

- Efficiency programs rely on those in building trades, construction, engineering, and service sectors to be successful
- It's important that workforce has the necessary skills and expertise
- In many places, not enough professionals entering the workforce to meet future demand
  - Example: HVAC technicians

Workforce Development Example

- California Workforce Education & Training (WE&T) programs
  - Support K-12 schools in driving awareness in EE careers
  - Help disadvantaged communities to enter the EE workforce
  - Collaborate w/ Post-secondary educators like community college and certification programs
  - Technical upskilling of existing workers through continuing Ed
  - Long-term strategic planning of workforce needs with department of labor and education

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Thank you

Questions?

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