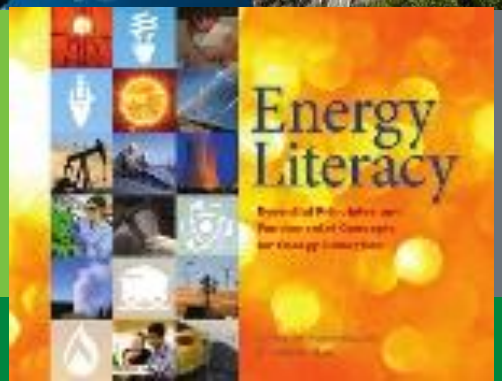
# Energy Is Everywhere!

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy


**Webinar Series sponsored by Housing and Urban Development, Department of Energy and Department of Education**




**What is Energy Literacy?**

**10.30.2014**

# Webinar Agenda



- Welcome and Intro to Webinar Series (HUD)
- Polling Questions (HUD)
- Why Energy Literacy? (HUD)
- Understanding Energy Literacy (DOE)
- Best Practices and Innovative Approaches (Energy Outreach Colorado)
- Q & A

You are on mute! Use your webinar bar to fill out poll or chat to send in a question.

# We want to hear from you…Polling Questions



Answer our Poll now in your Webinar Screen

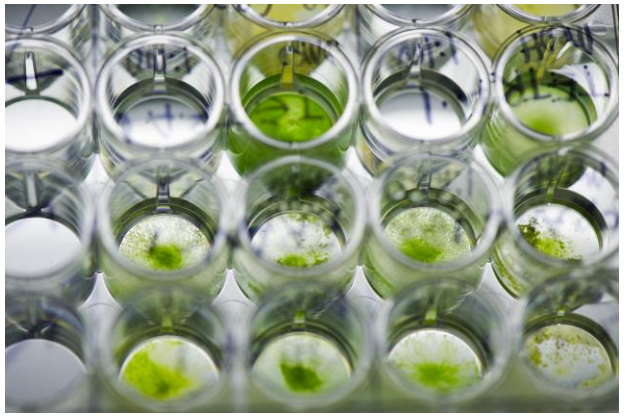
- Have you (PHA/or MF) owner provided energy literacy information to your residents?
  - Yes or No
  - What have you provided: _____
- What type of energy literacy material would you be interested in receiving from HUD/DOE/ED to promote energy literacy among residents?
  - Brochures
  - Events
  - Webinars

# Why Energy Literacy?



- PHAs receive energy policy guidance from HUD through regulatory language, policy notices and resource materials.
- PHAs, through HUD energy policies provide energy related guidance to their residents.
- Within HUD programs, energy conservation efforts are tied closely to energy literacy. PHAs are required to reduce energy consumption where cost effective.

# Draw a picture of Energy…



# Energy Use in the United States

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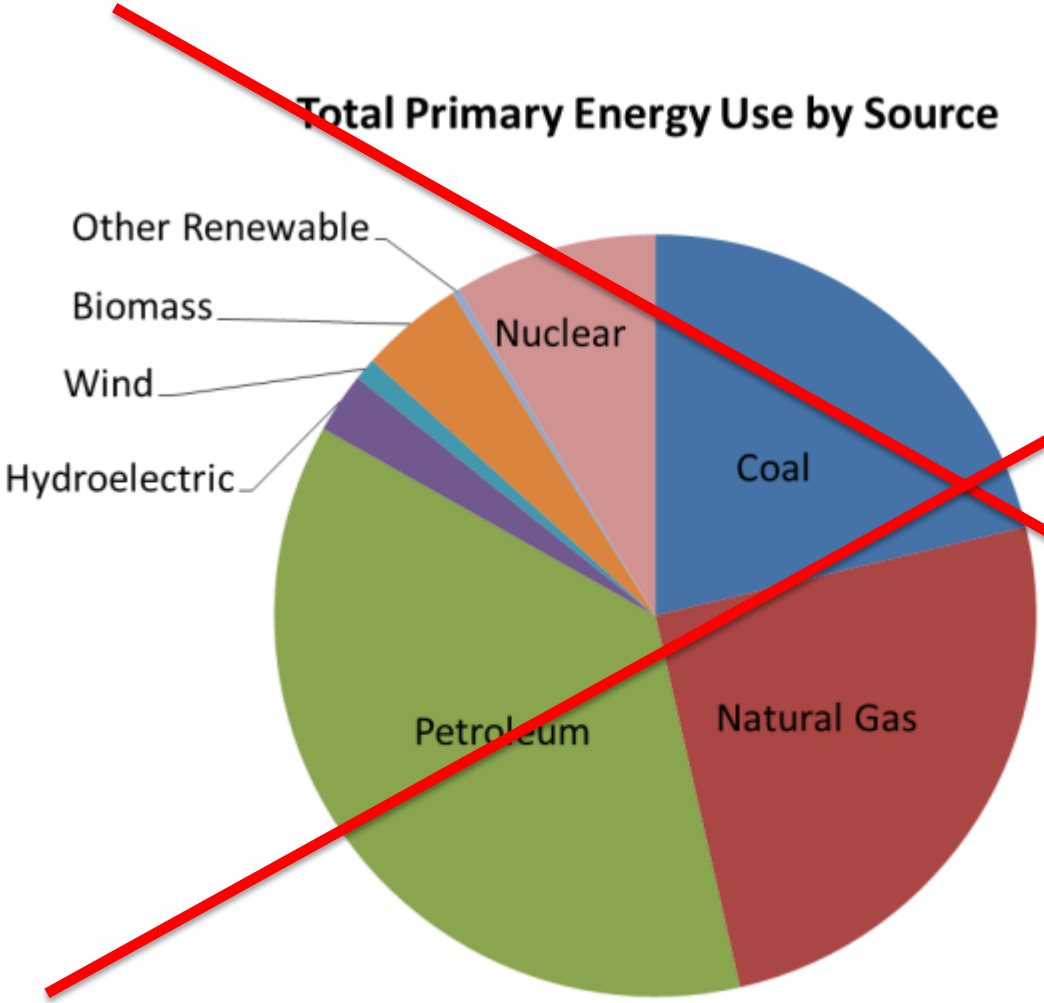
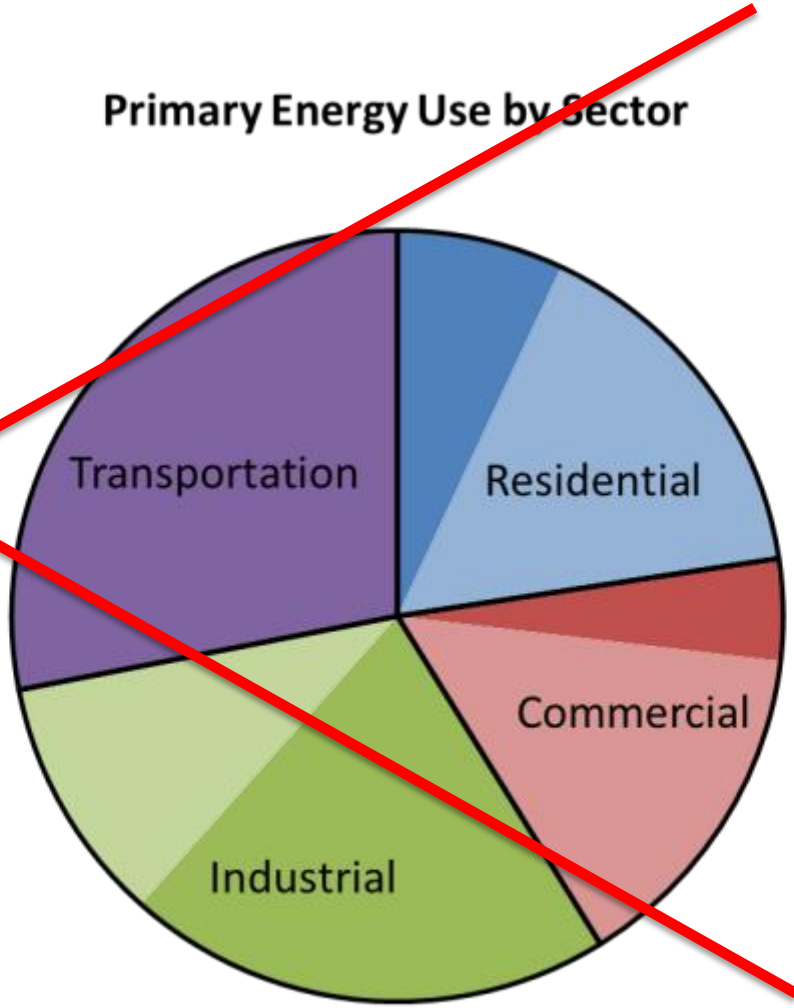



Total Energy Use = 98 quadrillion Btu

(in left chart, lighter shade is energy for electricity used in that sector)

# How much energy do you use?

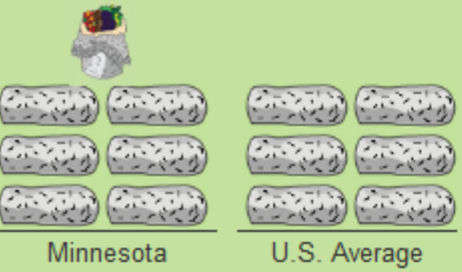
See how much **energy** someone like you used in 2012.

SELECT STATE

MINNESOTA

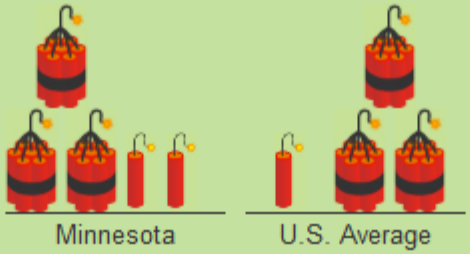
## 158,300,000 BTU

That's like the energy in:



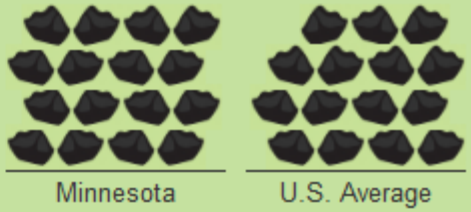

33,265 burritos

**2,039 burritos above the U.S. Average.**




175,806 sticks of dynamite

**10,773 sticks above the U.S. Average.**




16,374 lbs. of coal

**1,004 lbs. of coal above the U.S. Average.**

# Why does Energy Literacy matter?

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**7** The quality of life of individuals and societies is affected by energy choices.

***Understanding the nature and role of energy in our daily lives.***

**How and why energy matters to me, the resident?**


# What and how we say it matters!



80% of girls are interested in a STEM career, but only 13% choose a STEM field as their career choice.

*"Girl Scouts Generation STEM: What Girls Say about Science, Technology, Engineering, and Math"* pg. 26; Girl Scouts Research Institute, 2012.

**Energy provides a great opportunity for Women in STEM**

# Energy Illiteracy

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## Who reads their electric bill?

| Account Number | Billing Date | Next Read Date |
|---|---|---|
| 1234-567-8910 | Jun 18, 2007 | Jul 17, 2007 |

**Service Provided to**
Joe Electric
1234 Main Street
W BARNSTBL MA 02668

**Account Summary**

| | |
|---|---|
| Previous Bill | 115.30 |
| Payment - Thank You | -115.30 |
| Total Delivery Charges | 50.30 |
| **Delivery Svcs Balance** | **$50.30** |

### Electricity Used

Rate 32-Residential Nonheat - Annual
Meter 2300459

| | | |
|---|---|---|
| Jun 15, 2007 Actual Read | | 4846 |
| May 16, 2007 Actual Read | - | 4187 |
| 30 Day Billed Use | | 659 |

| 2300459 | KWH |
|---|---|
| 06/15 | 659 |
| 05/16 | 412 |
| 04/17 | 509 |
| 03/16 | 538 |
| 02/14 | 539 |
| 01/15 | 783 |
| 12/14 | 714 |
| 11/14 | 479 |
| 10/17 | 435 |
| 09/18 | 552 |
| 08/17 | 1030 |
| 07/18 | 930 |
| 06/17 | 673 |

### Cost of Electricity

Delivery Services

| | | | |
|---|---|---|---|
| Customer Charge | | | 3.73 |
| Distribution | .04825 X | 659 KWH | 31.80 |
| Transition * | .01458 X | 659 KWH | 9.61 |
| Transmission | .00482 X | 659 KWH | 3.18 |
| Renewable Energy | .00050 X | 659 KWH | 0.33 |
| Energy Conservation | .00250 X | 659 KWH | 1.65 |
| **Delivery Services Total** | | | **50.30** |

** PART OF WHAT WE COLLECT IN THE TRANSITION CHARGE IS OWNED BY CEC FUNDING LLC*

# Without it…



## The U.S. Energy Literacy Gap


Perceived Energy Knowledge


Actual Energy Knowledge

*"Only 12% of the U.S. adult population is considered energy literate"*

*America's Low Energy IQ 2002*

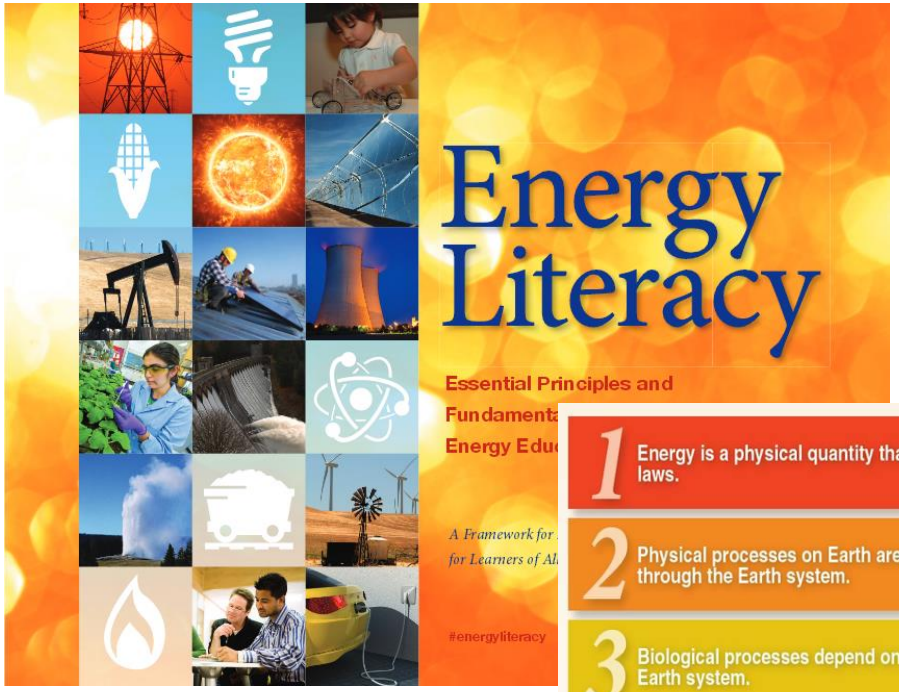
# Energy Literacy

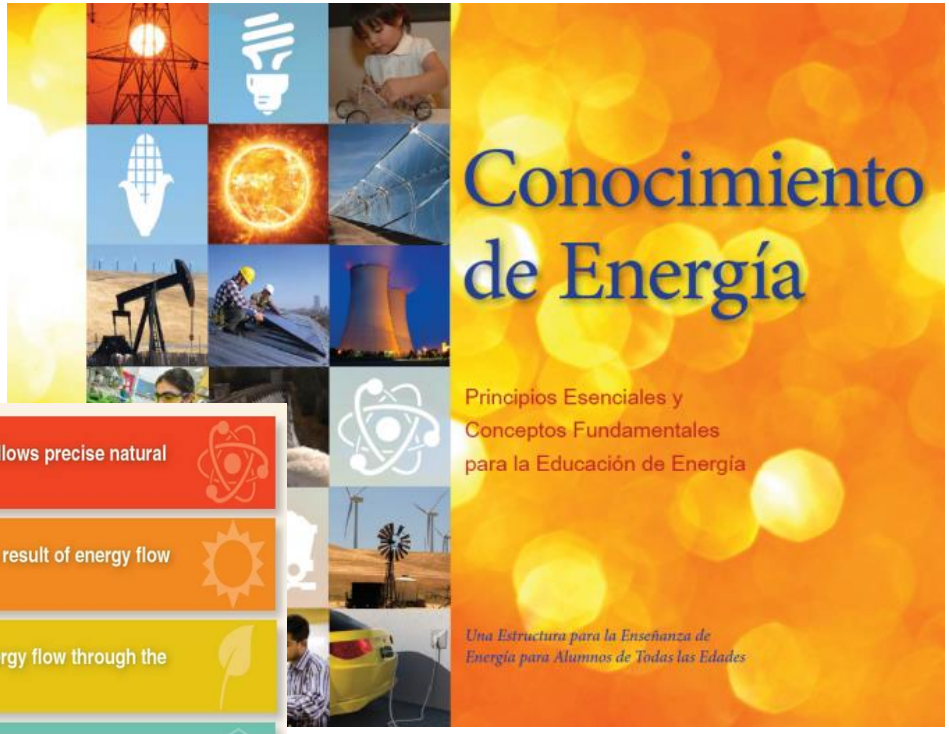


- A better understanding of energy can:
  - Lead to more informed decisions
  - Improve the security of the nation
  - Promote economic development
  - Lead to sustainable energy use
  - Reduce environmental risks and negative impacts
  - Help individuals and organizations save money

# Energy Literacy Framework






1. Energy is a physical quantity that follows precise natural laws.
2. Physical processes on Earth are the result of energy flow through the Earth system.
3. Biological processes depend on energy flow through the Earth system.
4. Various sources of energy can be used to power human activities, and often this energy must be transferred from source to destination.
5. Energy decisions are influenced by economic, political, environmental, and social factors.
6. The amount of energy used by human society depends on many factors.
7. The quality of life of individuals and societies is affected by energy choices.

# Energy Literacy – A holistic interdisciplinary approach to Energy

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**Natural Sciences**
- Physics
- Chemistry
- Earth Science
- Biology

**Engineering / Technology**

**Social Sciences**
- Civics
- Economics
- Psychology

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# ENERGY OUTREACH COLORADO

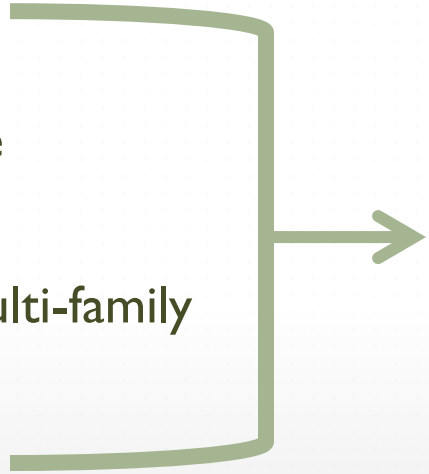
Nicole O'Connor

Energy Behavior Change Program Manager

# WHO IS EOC?

- Energy Outreach Colorado
  - "Dedicated to making home energy affordable for all Coloradans"

- Programs
  - Utility Bill Assistance
  - Energy Efficiency
    - Nonprofits & Multi-family
  - Advocacy

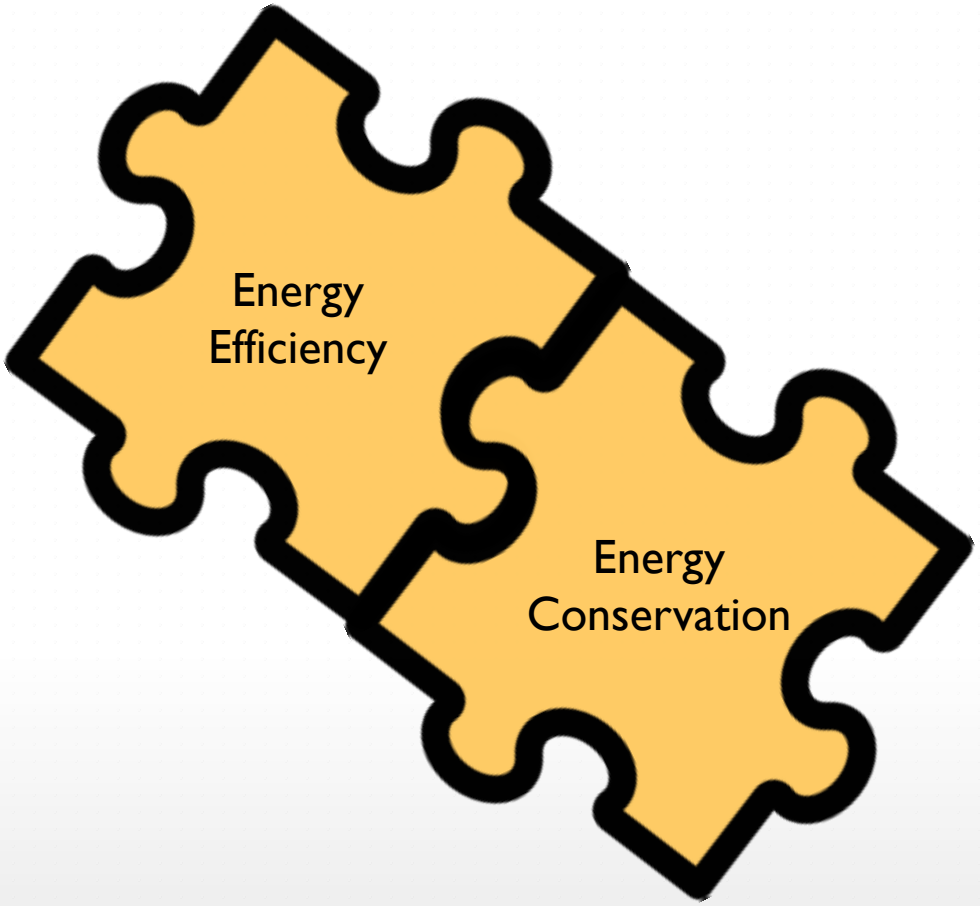


- Energy Conservation
- Behavior Change
- Energy Education
- Energy Literacy

ENERGY OUTREACH Colorado

# BENEFITS

- Cost savings
  - Building owner
  - Residents
- Increased lifespan of equipment
- Engaged community & healthy lifestyle
  - Less turnover
  - Enthusiastic staff
- Long-term impact that cannot be measured




ENERGY OUTREACH Colorado

# THE FRAMEWORK

1) Understand your community
2) Develop key areas of focus
3) Develop engagement strategies
4) Establish program infrastructure
5) Execute program
6) Track progress & evaluate success
7) Create a culture of shift

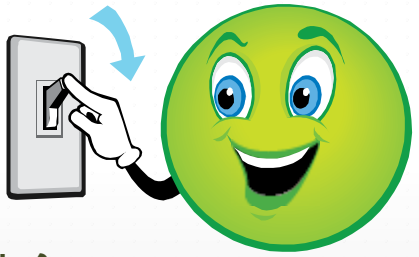
ENERGY OUTREACH Colorado

# 1) UNDERSTAND THE COMMUNITY

- Why?
  - Ensures you are engaging residents in topics that are relevant to their current surroundings, cultural context, & community to increase buy-in
- Who?
  - Outside research group, internal staff, residents
- How?
  - Focus Groups
  - Surveys – of staff and residents
  - Resident Meetings

# 2) DEVELOP KEY AREAS OF FOCUS

- Why?
  - Engage residents in specific energy saving behaviors that are actually achievable based on their community characteristics
- Who?
  - Outside research organization, Internal Staff, Resident led team
- How?
  - Develop a goal – make it S.M.A.R.T.
    - **S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**imely
  - Choose specific behaviors – what behaviors can/will they do?
  - Determine barriers to changing that behaviors



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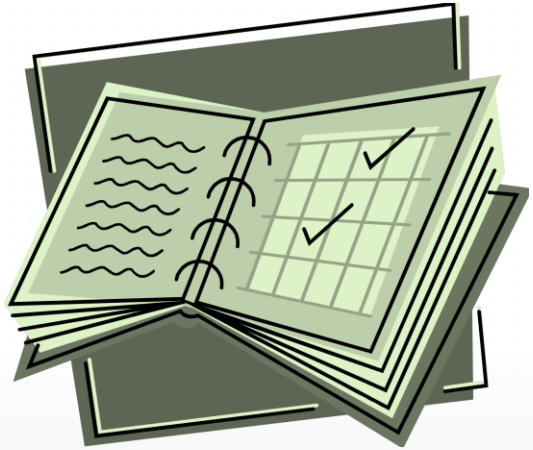
# 3) DEVELOP ENGAGEMENT STRATEGIES

- Why?
  - Determine the best strategies that will help you achieve the goal and the specific key areas of focus
- Who?
  - Internal staff, Graphic designers, Energy consultant, Nonprofit organizations, Community centers
- How?
  - Use your knowledge of the barriers to determine what strategy you may implement
  - Utilize existing infrastructure and communication methods
  - Allow education to infiltrate into all strategies
    - Increase awareness but also motivate residents to participate!

# STEPS 4-5

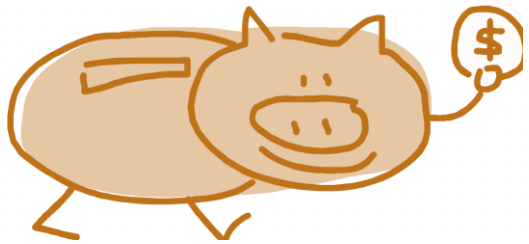
- Establish Program Infrastructure
  - Gather all of necessary people & supplies
  - Create a timeline



- Execute the Program
  - Start engaging!

# 6) TRACK PROGRESS & EVALUATE

- Why?
  - Increases motivation – for management, staff, and residents – to know what progress has taken place
  - Great reminder that our actions are making a difference
  - Demonstrates the success to appropriate people – Has the goal been met?
- Who?
  - Housing Authority staff
  - Energy consultant
- How?
  - Track progress through appropriate utility bill tracking software
    - Cost: Energy Star Portfolio Manager, Greenquest, WeGo Wise, EnergyCAP, etc.
    - No Cost: Existing accounting method, Excel spreadsheet



# 7) CREATE A CULTURE SHIFT

- Why?
  - When a culture shift takes place, this requires less time and energy for implementation in the future
- Who?
  - All parties involved long-term
- How?
  - Create a long-term plan with long-term goals
  - Provide consistent follow-up and feedback
  - Celebrate the successes!
  - Share the stories

# LESSONS LEARNED

- Lack of Persistence
  - Required it with energy efficiency funding this led to decrease in involvement once the process wrapped up.
- Lack of Leadership
  - Takes someone to really champion the cause internally
- Tracking Results
  - High energy savings achieved but program is conducted in conjunction with energy efficiency
- Increased Understanding
  - Affordable housing culture related to energy use
- Customized approach
  - Based on the community leads to results
- Program manager buy-in from EOC staff

# QUESTIONS TO ASK ATTENDEES

- Have any of you implemented anything like this already?
- What interests do you have in energy literacy with residents? With staff?
- What other benefits do you see in increasing resident engagement?
- What struggles do you find in engaging residents?
- What successes have you seen in engaging residents?

# Contact Us

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**We are interested in your feedback on the Energy Is Everywhere Series!**

**energyliteracy@ee.Doe.gov**