dab
Energy Workshop
dab
design to change behavior
OVERVIEW

Human Energy Behaviors

CO₂

Climate Change

Fuel Demand

Energy Insecurity

me

link

problem
ENERGY INSECURITY: IMPACTS

WORLD ENERGY DEMAND TO 2030

<table>
<thead>
<tr>
<th>Sector</th>
<th>Average Growth/Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res/Comm</td>
<td>0.7%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1.2%</td>
</tr>
<tr>
<td>Transportation</td>
<td>1.7%</td>
</tr>
<tr>
<td>Power Generation</td>
<td>1.5%</td>
</tr>
<tr>
<td>OVERALL AVG.</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Instructor: Find the graph on increasing gas prices from http://www.washingtonpost.com/wp-dyn/content/graphic/2008/07/26/GR2008072601566.html and insert onto slide.
ENERGY INSECURITY: CAUSE

Fuel Use & Fuel Exports


Instructor: Find the images and insert into slide.
**ENERGY INSECURITY: CAUSE**

### Oil and Gas Reserves, Billion Barrels Oil Equivalent

<table>
<thead>
<tr>
<th>Company</th>
<th>Reserves</th>
<th>State Owned/Controlling Interest.</th>
<th>Private Sector Owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Aramco (Saudi Arabia)</td>
<td>302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Iranian Oil Co</td>
<td>302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gazprom (Russia)</td>
<td>198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iraqi National Oil Co</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qatar Petroleum</td>
<td>133</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuwait Petroleum Co</td>
<td>109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroleos de Venezuela</td>
<td>105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adnoc (Abu Dhabi)</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigerian Natnl Petroleum Co</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sonatrach (Algeria)</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libya NOC</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosneft (Russia)</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petronas (Malaysia)</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pertamina (Indonesia)</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lukoil (Russia)</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pemex (Mexico)</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PetroChina</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yukos (Russia)</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chevron</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrobras (Brazil)</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (France)</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgutneftgas (Russia)</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ENERGY INSECURITY: ARTICLE

Northeast Food and Heating

Sources:
The Heat or Eat Dilemma  By Deborah A. Frank and Joseph P. Kennedy II  New York Times  October 21, 2007

ENERGY INSECURITY: IMPACTS
LIFE CYCLE: TRANSPORTATION
MEET
KAREN
# Karen’s Weekly Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Current mode of transport</th>
<th>After school destinations</th>
<th>Items to carry</th>
<th>Potential mode of transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Car</td>
<td>Band practice</td>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Tues</td>
<td>Car</td>
<td>Tennis practice</td>
<td>Tennis racket</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>Car</td>
<td>Band practice</td>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Thurs</td>
<td>Car</td>
<td>Tennis practice</td>
<td>Tennis racket</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>Bike</td>
<td>None</td>
<td>Backpack</td>
<td>Bike</td>
</tr>
</tbody>
</table>

**Note:**
- **Mon:** Car - Band practice; Instrument
- **Tues:** Car - Tennis practice; Tennis racket
- **Wed:** Car - Band practice; Instrument
- **Thurs:** Car - Tennis practice; Tennis racket
- **Fri:** Bike - None; Backpack - Bike
BIKING IN EUROPE

% of people who bike in urban areas in the US: 6%
% of people who bike in urban areas in the US: 25%
CHIC AND ROMANTIC
COST
The average American uses 500 gallons of gas per year. At current gas prices, that’s about $1600 per year.

CONGESTION
On average, Americans spend more than 100 hours commuting every year.

NO CONGESTION AND NO COST
CLOTHES
WITH LOTS TO CARRY
## KAREN’S WEEKLY SCHEDULE

<table>
<thead>
<tr>
<th>Day</th>
<th>Current mode of transport</th>
<th>After school destinations</th>
<th>Items to carry</th>
<th>Potential mode of transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Car</td>
<td>Band practice</td>
<td>Instrument</td>
<td>BUS</td>
</tr>
<tr>
<td>Tues</td>
<td>Car</td>
<td>Tennis practice</td>
<td>Tennis racket</td>
<td>BIKE</td>
</tr>
<tr>
<td>Wed</td>
<td>Car</td>
<td>Band practice</td>
<td>Instrument</td>
<td>BUS</td>
</tr>
<tr>
<td>Thurs</td>
<td>Car</td>
<td>Tennis practice</td>
<td>Tennis racket</td>
<td>BIKE</td>
</tr>
<tr>
<td>Fri</td>
<td>Bike</td>
<td>None</td>
<td>Backpack</td>
<td>Bike</td>
</tr>
</tbody>
</table>
MEET
JOE
Key:
Gunn
Gunn District
3 mile radius around Gunn
1. Reduce weight
2. Inflate tires
3. Turn off accessories
4. Pulse and Glide
5. Shift
6. Stop idling
## Observation Worksheet

<table>
<thead>
<tr>
<th>Activity</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Total</th>
<th>Balloons saved per behavior</th>
<th>Total balloons saved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang-dry clothes instead of using a dryer (# of times)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn off appliances when not in use rather than leave them on (# of days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk, bike, carpool or bus rather than drive a car (# of miles per day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat a vegetarian meal instead of one with meat (# of meals)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make a meal from whole foods rather than pre-processed or packaged foods (# of meals)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use a reusable bottle rather than a disposable bottle or can (# of bottles replaced)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

___ + ___ = Group Total

___ + ___ + ___ = __________
# Observation Worksheet

## My electricity change:

<table>
<thead>
<tr>
<th>Before:</th>
<th>What will you do first step?</th>
<th>What was first step?</th>
<th>What was difficult?</th>
<th>How did you overcome it?</th>
<th>What do you think will be difficult?</th>
<th>How will you overcome this?</th>
<th>When will you start?</th>
<th>What do you think I’ll like?</th>
<th>After:</th>
<th>What was your next step?</th>
<th>What was difficult?</th>
<th>How will you overcome this?</th>
<th>What do you think I’ll like?</th>
</tr>
</thead>
</table>

## My transportation change:

<table>
<thead>
<tr>
<th>Before:</th>
<th>What will you do first step?</th>
<th>What was first step?</th>
<th>What was difficult?</th>
<th>How did you overcome it?</th>
<th>What do you think will be difficult?</th>
<th>How will you overcome this?</th>
<th>When will you start?</th>
<th>What do you think I’ll like?</th>
<th>After:</th>
<th>What was your next step?</th>
<th>What was difficult?</th>
<th>How will you overcome this?</th>
<th>What do you think I’ll like?</th>
</tr>
</thead>
</table>

## My food change:

<table>
<thead>
<tr>
<th>Before:</th>
<th>What will you do first step?</th>
<th>What was first step?</th>
<th>What was difficult?</th>
<th>How did you overcome it?</th>
<th>What do you think will be difficult?</th>
<th>How will you overcome this?</th>
<th>When will you start?</th>
<th>What do you think I’ll like?</th>
<th>After:</th>
<th>What was your next step?</th>
<th>What was difficult?</th>
<th>How will you overcome this?</th>
<th>What do you think I’ll like?</th>
</tr>
</thead>
</table>

*Observation Worksheet*
### Observation Worksheet

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
<th>Class 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

#### My electricity change:
- Before:
  - What will you do first? Answer.
  - What do I think will be difficult? Answer.
  - How will I overcome this? Answer.
  - When will I start? Date.
  - What do I think I’ll finish? Answer.
- After:
  - What was the first step? Answer.
  - What was difficult? Answer.
  - How did I feel to overcome it? Feelings.
  - What would I like? Answer.

#### My transportation change:
- Before:
  - What will you do first? Answer.
  - What do I think will be difficult? Answer.
  - How will I overcome this? Answer.
  - When will I start? Date.
  - What do I think I’ll finish? Answer.
- After:
  - What was the first step? Answer.
  - What was difficult? Answer.
  - How did I feel to overcome it? Feelings.
  - What would I like? Answer.

#### My food change:
- Before:
  - What will you do first? Answer.
  - What do I think will be difficult? Answer.
  - How will I overcome this? Answer.
  - When will I start? Date.
  - What do I think I’ll finish? Answer.
- After:
  - What was the first step? Answer.
  - What was difficult? Answer.
  - How did I feel to overcome it? Feelings.
  - What would I like? Answer.
**Eat less meat:**
- I will replace one meat meal with a vegetarian option.
- I will eat meat once or fewer times per day.

**Eat fewer processed and packaged snacks:**
- I will make my own snack out of whole foods to eat this week.
- I will reduce the amount of processed snacks by 2 this week.

**Reduce disposable bottles:**
- I will take a reusable water bottle to school 3 days this week.
- I will reduce bottled/canned beverages by 2 this week.
VIDEO EXAMPLE

Instructor: Find the video below and play in class

NEED LINK
1. Select your behavior:
   Specify the audience:
   HIGH SCHOOL STUDENTS
   Specify the topic (circle one):
   ELECTRICITY
   TRANSPORTATION
   FOOD
   High-energy behavior you want to change:
   Low-energy behavior you want to promote:
   Specific change to promote:

2. Start your story
   Medium (circle one): Skill/Soap Opera/Ad/Cartoon/Song/Poem/Other
   Positive Character:
   Transitional Character:
   Other Characters:
   Setting:
   Situation:

3. Address Challenges, Motivation
   How does the low-energy behavior link to bigger issues (like climate change, energy insecurity)?
   How will you encourage your audience to remember to do this behavior?
   What is challenging about the behavior?
   How will your character overcome the challenge?
   What are some good things about the low-energy behavior?

4. Enhance your story
   - circle the SUCCESs tools you will use and write next to it ideas for how to apply it.
   simple, unexpected, concrete, credible, emotional

5. Write your final story here using the numbered sections below. Use one scene/idea/poem verse per number.
   Title:
   1. __________
   2. __________
   3. __________
   4. __________
   5. __________
   6. __________
   7. __________
   8. __________

6. Convert to storyboard
   (If appropriate for your project) and draw where each character is and what happens in each frame.
   1. __________
   2. __________
   3. __________
   4. __________
   5. __________
   6. __________
   7. __________
   8. __________
PROTOTYPE WORKSHEET

1. Select your behavior:
   Specify the audience:
   High School Students
   Specify the topic (circle one):
   Electricity
   Transportation
   Food

2. Start your story:
   Medium (circle one): Script/Soap Opera/Ad/Cartoon/Song/Poem/Other
   Positive Character:
   Transitional Character:
   Other Characters:
   Setting:
   Situation:

3. Address Challenges, Motivation:
   How does the low-energy behavior link to bigger issues (like climate change, energy insecurity)?
   How will you encourage your audience to remember to do this behavior?
   What is challenging about the behavior?
   How will your character overcome the challenge?
   What are some good things about the low-energy behavior?

4. Enhance your story:
   - simple
   - unexpected
   - concrete
   - credible
   - emotional

5. Write your final story here using the numbered list below. Use one scene/idea/poem verse per number.
   Title: ____________________________
   1. ____________________________
   2. ____________________________
   3. ____________________________
   4. ____________________________
   5. ____________________________
   6. ____________________________
   7. ____________________________
   8. ____________________________

6. Convert to storyboard:
   (If appropriate for your project) and draw where each character is and what happens in each frame.
   1. ____________________________
   2. ____________________________
   3. ____________________________
   4. ____________________________
   5. ____________________________
   6. ____________________________
   7. ____________________________
   8. ____________________________
### Prototype Worksheet

**Group Activity:** Group Name: ____________________________   Members: ________________________   Date: ____________________________   Class Period: _______   Teacher: ________________________

#### 1. Select your behavior:
- Specify the audience:
  - High School Students
- Specify the topic (circle one):
  - Electricity
  - Transportation
  - Food
- High-energy behavior you want to change: ________________________
- Low-energy behavior you want to promote: ________________________
- Specific change to promote: ________________________

#### 2. Start your story
- Medium (circle one):
  - Skit
  - Soap Opera
  - Ad
  - Cartoon
  - Song
  - Poem
  - Other
- Positive Character: ________________________
- Transitional Character: ________________________
- Other Characters: ________________________
- Setting: ________________________
- Situation: ________________________

#### 3. Address Challenges:
- Motivation
  - How does the low-energy behavior link to bigger issues (like climate change, energy insecurity)?
  - How will you encourage your audience to remember to do this behavior?
  - What is challenging about the behavior?
  - How will your character overcome the challenge?
  - What are some good things about the low-energy behavior?

#### 4. Enhance your story
- Circle the SUCCESS tools you will use and write next to it:
  - Simple
  - Unexpected
  - Concrete
  - Credible
  - Emotional

#### 5. Write your final story here using the numbered list below. Use one scene/idea/poem verse per number.
- Title: ________________________

1. ________________________
2. ________________________
3. ________________________
4. ________________________
5. ________________________
6. ________________________
7. ________________________
8. ________________________

#### 6. Convert to storyboard
- (If appropriate for your project) and draw where each character is and what happens in each frame.
- 1. ________________________
- 2. ________________________
- 3. ________________________
- 4. ________________________
- 5. ________________________
- 6. ________________________
- 7. ________________________
- 8. ________________________
Extensive analysis of urban legends, wartime rumors, proverbs, conspiracy theories, jokes, class lectures, and psychology experiment findings have shown that messages “stick” and get passed on when they are:

**Simple** – Use one core idea

**Unexpected** – Use surprise, but then curiosity to maintain interest

**Concrete** – Explain in terms of physical objects and human actions

**Credible** – Use a good spokesperson or make it consistent w/ experience

**Emotional** – Tap into an emotion instead of using lots of facts

**Stories** – People find meaning in, tend to remember, and are motivated by stories