

## THE GLOBAL ENERGY GAME RULE CARD

Welcome to the country of Argyle! Argyle is a beautiful island, about the size of Maine, with many natural features. Argyle has a population of one million residents and is growing fast. The country relies on fossil fuels for its transportation and energy needs, causing ozone and other air quality problems and contributing to global climate change.

Argyle depends on coal as its major fuel source. The island has many coal deposits, so it is an accessible and inexpensive fuel—residents pay only 5¢ per kilowatt hour (kWh) for their electricity. The average citizen uses 6,000 kwh/year and demand is steadily increasing. But coal causes many problems, too. Coal is a non-renewable resource that emits several pollutants. For example, coal-fired power plants emit two-thirds of the country's sulfur dioxide (SO<sub>2</sub>) pollution. SO<sub>2</sub> is a major cause of acid rain and a contributor to several respiratory diseases. Coal is also the highest producer of carbon dioxide (CO<sub>2</sub>) of all of the fossil fuels, emitting 56 pounds (lbs) of CO<sub>2</sub> for every 1 million Btu (British Thermal Unit, a measure of energy) produced. Carbon dioxide is an important greenhouse gas and a major contributor to global warming.

Ten years ago, the island supported 25,000 gasoline fueled cars. Today there are 80,000 and more roads are being built. Gasoline fueled cars emit several pollutants, including carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), particulate matter, and volatile organic compounds. Gasoline emits 42.8 lbs CO<sub>2</sub> per million Btu's.

Argyle's government has decided to reduce the health and environmental risks of its current energy practices by investing in other sources of energy. At the same time, it needs to provide adequate energy and transportation for its one million inhabitants. You have been elected to lead Argyle's government, your mission is to:

- **meet the energy needs of the country;**
- **improve air quality and manage other environmental risk;**
- **maintain a strong economy and keep taxes (or per capita costs) low.**

You must accomplish these goals through your voting decisions and personal life-style choices. Remember, you are a team and must cooperate to meet your goals; feel free to disagree with each other, but always respect each others' opinions and feelings. Good Luck!

### SET UP

- Read the roles from the ROLE card. Decide who will take on each role.
- Place your game tokens in any square on the wheel.
- Place one token in the zero square on each of the scales (energy, environment, economy). This is the baseline. Any movement up the scale (to the right) is an improvement; any movement down (to the left) is a worsening.
- Shuffle the VOTE cards. Place them VOTE side up, STATUS side down.
- Roll the dice to see who goes first, roll to play and record your vote results.

5. Issue: \_\_\_\_\_

Reasons For:

Reasons Against:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

6. Issue: \_\_\_\_\_

Reasons For:

Reasons Against:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

7. Issue: \_\_\_\_\_

Reasons For:

Reasons Against:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

8. Issue: \_\_\_\_\_

Reasons For:

Reasons Against:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

**End of Game Status:**

**List your final energy mix:**

Energy \_\_\_\_\_ points

\_\_\_\_\_

Environment \_\_\_\_\_ points

\_\_\_\_\_

Economy \_\_\_\_\_ points

\_\_\_\_\_

Total Cost per capita \_\_\_\_\_

Did you balance the 3 E's? Did you improve air quality?

## RECORD CARD

The Record Keeper uses this card to record each voting issue, the reasons for and against the plan, the number of votes for and against and the cost per capita.

Date: \_\_\_\_\_ Team: \_\_\_\_\_

1. Issue: \_\_\_\_\_

Reasons For: \_\_\_\_\_

Reasons Against: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

2. Issue: \_\_\_\_\_

Reasons For: \_\_\_\_\_

Reasons Against: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

3. Issue: \_\_\_\_\_

Reasons For: \_\_\_\_\_

Reasons Against: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

4. Issue: \_\_\_\_\_

Reasons For: \_\_\_\_\_

Reasons Against: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Vote Results: #YES \_\_\_\_\_ #NO \_\_\_\_\_ Cost/capita \_\_\_\_\_

## THE PLAY

- *Player* 1 rolls the dice, moves clockwise around the board and reads the instructions in the square where he/she lands.
- The *Scorekeeper* moves the tokens the prescribed number of spaces on their scales.
- If the token lands on a VOTE square, the *Facilitator* oversees the play rules and draws a VOTE card. Being careful not to look at or show the STATUS side of the card. The *Player* reads the question and facts on the card to the group.
- The *Facilitator* promotes a discussion about the question, making sure to encourage everyone to participate. After five to ten minutes of discussion, the *Facilitator* conducts the vote and the *Recorder* enters the results on the Record card.
- The *Player* then turns over the VOTE card and reads the STATUS report. If the group voted YES, the reader reads the top half of the card; if the group voted NO, the reader reads the bottom half of the card.
- The *Scorekeeper* then moves the tokens the prescribed number of spaces up or down their scales and the *Mapmaker* draws the energy source on the map if chosen.
- For each vote, the *Recorder* enters the issue, the reasons the reasons for and against and the number of yes and no votes and per capita costs on the Record Card.
- In casting a vote, avoid letting the tokens land in the far left square of any scale (blackout, eco-crisis or bankrupt). If the investment cost of a project will put the economy token in bankruptcy, but the group feels that an economic gain will balance it out, they may take that chance. **But if Argyle has a blackout, an eco-crisis or goes bankrupt, the game is over.**
- After the vote has been taken, place the VOTE card in a discard pile.
- The play progresses in this manner until all of the VOTE cards have been read or until a predetermined amount of time runs out.
- At the end of the game, the group tallies their results, each player completes a team self assessment checklist below, if required by teacher.
- After completion of the game, each team will be asked to report out on Argyles resulting energy mix and average cost per capita.

*Remember, the goal is to provide an adequate energy mix (variety of energy choices), improve the air quality and balance those needs with the economy. Of course, if you can keep taxes low too, it will make the citizens of Argyle happy.*

### TEAM SELF ASSESSMENT

*(Record responses on a separate sheet for your teacher, if asked.)*

Did each player identify and perform his/her role  
to accomplish the group tasks?

Did all players participate in discussion?

Did each player use information to make convincing arguments?

Did any players ask insightful questions?

Did any players use thinking skills and show active problem solving?