CHANGING THE GAME IN-GAME MANUAL

ENERGYCROSSROADS
the global coalition for a clean, prosperous and secure energy future

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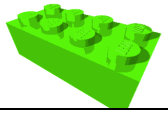
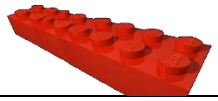
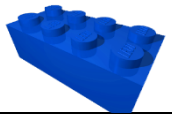
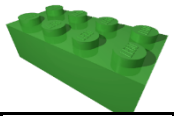
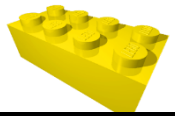
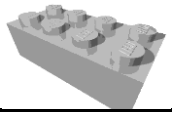
Introduction (READ OUT LOUD!)

The LEGO towers in front of you represent the energy consumed (used) in transportation, heating, industry, and electricity in your region of Europe in the year 2035 if current trends in economic development and technology use continue unchanged. This scenario is called Business As Usual (BAU2035).

Each tower represents one sector. (Electricity is shown in two towers – which will be explained later). The towers are built by bricks of different colors representing different sources of energy e.g. coal, natural gas and wind power. The width of the fossil fuel bricks (coal, oil and natural gas) shows the CO_2 emissions from burning these fossil fuels. For the rest CO_2 emissions are assumed to be zero. The color code is shown below:space

	Coal		Nuclear
	Oil		Wind
	Natural Gas		Water
	Biomass		Solar
	Electricity		

The electricity sector is represented by two towers: one colored and one grey. The colored tower shows the energy resources used for the **production** of electricity. The grey one only shows the total electricity **consumption**. As the game progress you will get to know the difference between the two towers.

Is the energy consumption of your region moving in the right direction? Is there more or less energy being used? Which will be the main sources of energy in 2035?

It is now your job to change our energy future! You can choose to move it in a more sustainable direction – if you are willing to pay the cost!

1. More or less of the different types of energy? (READ OUT LOUD!)

Which energy sources should we focus on towards the year 2035?
Discuss within the group different pros (advantages) and cons (disadvantages) of the different sources of energy shown below. Why would you focus on some and why not others. Are there any constraint with certain types and what challenges do you expect if we increase or decrease one or the other.

Use arrows to indicate a: ↑ increased (larger) use, → same use, ↓ decreased (smaller) use toward 2035.

Energy source	Change (Arrows)	Pros	Cons
Coal			
Oil			
Natural gas			
Biomass (straw and wood)			
Nuclear power			
Hydro power (water)			
Wind power			
Solar power			

2. Visions for a future energy system

Formulate 4 concrete visions for the future energy system and consumption of your region. *E.g. We want to reduce the use of oil by X%. Or: we want to maintain the same living standard as we have now. Visions can both be qualitative and quantitative.*

Vision 1: _____
_____

Vision 2: _____
_____

Vision 3: _____
_____

Vision 4: _____
_____

3. Take out a loan in the bank
Borrow 14 billion Euros from the European Central Bank (your facilitator) and sign the loan documents.

Remember that money comes from somewhere else in society!

Decide who will be the banker *(managing money and resources that don't belong to your region) and who will be the* cashier *(managing the groups money and dealing with the bank on behalf of the group).*

Banker:_____ Cashier_____

4. Priority – changing our energy future!

It is now to start deciding what our energy future will look like. You have many options to change our future, these options are stated on the *change cards.* Take the deck of change cards with options for your region of Europe.

Make three piles, one pile for each of the options below!

Yes	**Maybe**	**No**
We want to implement the change	We might want to implement the change	We do not want to implement the change

Read the different cards aloud so everyone in the group knows how the change works. Especially focus on

- The price, which indicates the annual cost of materials and development of implementing the change.
- The amount and kind of resources you can save and the extra resources you might need.
- Remember there can be political/environmental/personal consequences of implementing different changes that are not indicated by the cards.

5. Implement changes

Take the cards from the yes pile and implement them one at a time

a. Pay the cost stated on the card using the loan you have taken out of the bank
b. Implement the changes on the different LEGO towers by removing or adding LEGO blocks as indicated by the card.
c. Removed LEGO bricks correspond to energy savings. Since fuels cost money these are equivalent to cost savings – so keep track of the LEGO blocks you remove.
d. Changes to the electricity tower are made to the GREY tower **NOT** the colored one.

If you have any questions on how to implement the changes to the different towers ASK your facilitator!!!

The electricity tower is different from the other towers, because electricity is the same regardless of the energy resource used to produce it. For now, it is therefore only important to know how much electricity is needed – the sources used for the production will be dealt with later.

If you have more time left consider if you want to implement some of the cards from the *maybe* pile.

6. Cash in savings

Collect the money you will not spend due to energy savings by "selling" the bricks in your savings pile to the bank. Use the price list to so see how much money you save annually.

Do you use more or less electricity now than before? _____
(compare the grey and the colored tower)
Do you have more or less money now compared to before? _____

7. The electricity system

If we continue to use energy in our region of Europe like we use to, the colored electricity tower represents the different sources from which we produce our electricity in 2035 – do you approve of this?

Your job now, is to rethink which sources should fuel the future electricity system changing the composition of bricks in the *colored* electricity LEGO tower.

However different sources have different effects and costs and you as providers have to think of both the environment and available money.

In order to build an electricity system like the one shown by the colored tower, investments would need to be made in power plants as well as fuels would need to be bought. Since you choose not to pick the solution shown to you, but make your own, you should now "sell" the colored tower to bank and receive the money that would be required to build it (Ask you facilitator).

Now start building your own system!

Take the pile of energy cards and read aloud the information stated on them. On each card is stated the annual cost. Note that solar photovoltaics and wind power have special constraints. Separate the different cards as you did before in piles of yes, maybe, and no. Remember to read the text on each card out loud, such that everyone is following the process.

Yes	**Maybe**	**No**
We want to use this kind of energy to fuel the electricity sector	We maybe want to use this kind of energy to fuel the electricity sector	We do not want to use this kind of energy to fuel the electricity sector

Take this in to account as you start rebuilding the colored electricity tower to **match the height of the grey tower.**

Start to build your new electricity tower

- The Towers needs to be as tall as the grey tower.
- Use the power plant technologies from the yes and maybe piles.
- Pay for the bricks (power plants and energy) you use as you go along.
- The price indicated on the card is for one brick

8. Evaluation

How close did your scenario get to your initial visions (go back to page 3)?

_____

_____

_____

How expensive is your solution compared to BAU2035? _____

Take a few minutes to discuss: What did you learn? What was difficult? What was surprising?