# ENERGY LAB: Experience, User Flow, and Wireframes

DATE: July 9th, 2010

VERSION: 2.1

moey inc.

# CHANGE LOG

Version 2.0

**Global**
• Level Playing field issue. RedPeg made the suggestion that since each station has it's own measurements and capabilities of energy output, we find a solution for a level playing field. Therefore, Percent of energy produced for Energyville displayed on all "global" screens to encourage playful competition among teams.

• Using three initials, not first name last initial.

• GW is used globally as energy unit. Actual energy unit to come.

**Earth**
• Visual and demo on how to use the track ball.

• Powerplant in background with ship, train and pipe connecting to the three fossil fuels.

• Three views into the process of extracting fossil fuels, oil, coal and gas. Each window animates along with amount of production of that particular fuel (lever). Tactile feedback also kicks in during periods of peak production. Trackball controls extraction and transportation. Extraction and transportation is shown and is animated faster during high production periods. Environmental factors shown too (flora and fauna flourishes with balanced production, and diminishes with over-production).

**Fire**
• No interstitial screens are timed. A "next" button allows for advancement to the next screen.

**Wind**
• Added Attract Loop, Game Description, and a High Scores/CTA "screen" for Wind.

• Air has been changed to "wind"

• Collision detection included in gameplay.

• "Home" location for each puck. Here the Here the visitor can put their puck and learn how the technology works, practice rotating and selecting, etc. During gameplay, they can place puck here to change windmill type.

**Water**
• Incorporated hydroelectric power into the attract loop (text FPO).

• For the location, pared down the text. Stats about locations don't appear ahead of time. Game is more of a discovery.

Goal: We need to encourage the player to match the storm waves in an effort to produce more power.
•If the player matches the wave, they generate more power. this increase in power is shown in the bar graph. the bar graph maxes out if they match the storm waves. The dialog box offers congratulations and encouragement.

• Players can select another location at any time. And suggested gameplay time has been increased to 2:30.

# EARTH

- Description of Experience
- User Flow & Logic
- Wireframes

# EARTH: Experience

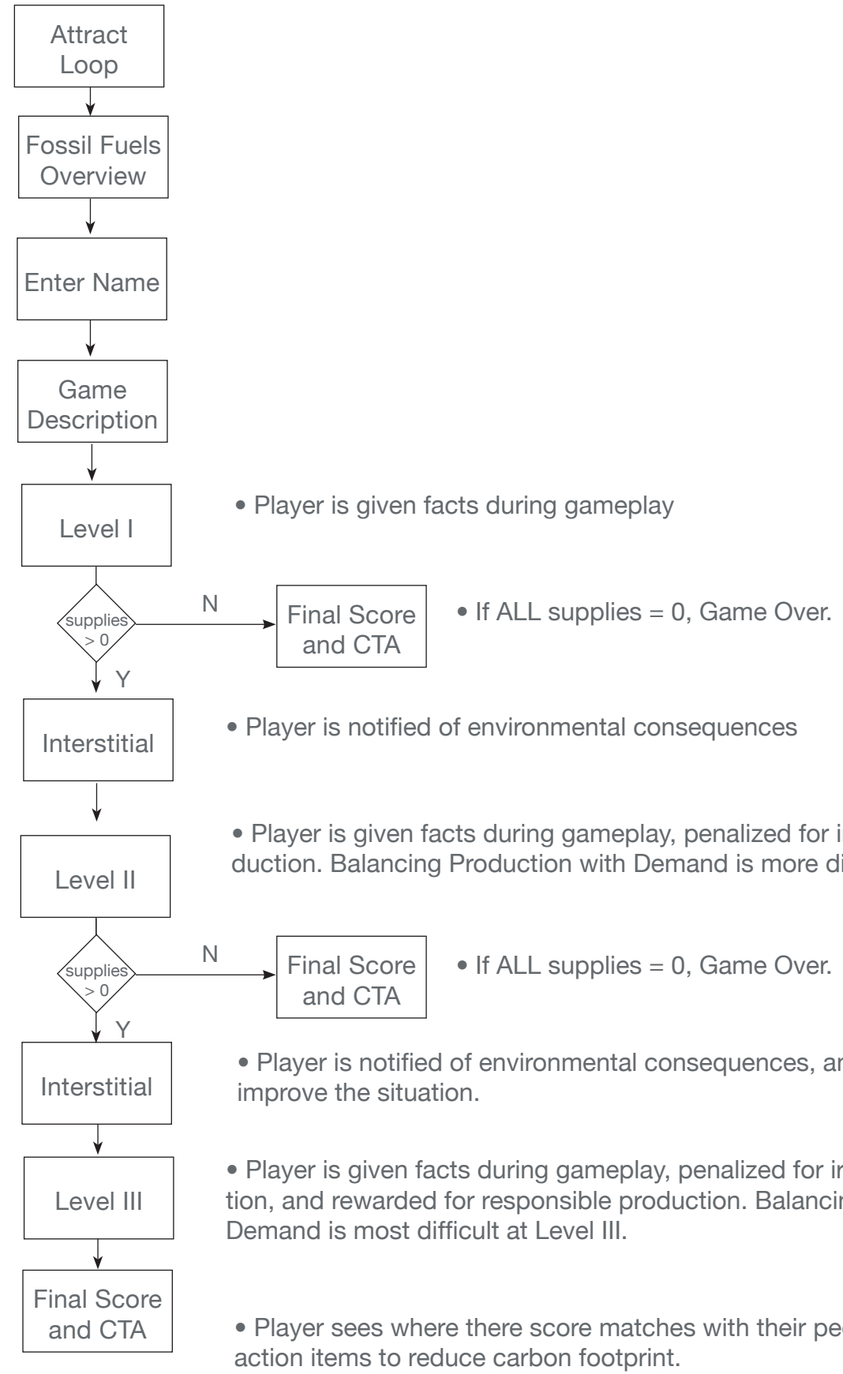
## Description

Players are taught about fossil fuels, supply, demand, and production through gameplay that challenges them to responsibly extract and transport oil, gas, and coal from the earth in an effort to produce electrical output (GW). Each fuel type has it's own demand and supply pool that the player must respond to. Levers associated with each fuel type allow the player to increase or decrease the production of a particular fuel type in order to meet the delicate balance of supply and demand. Maximizing production accrues more GW, picks up the pace of transportation methods (pipeline, ship, train), and results in a tactile response of the console. However,  if the player produces more fuel than is demanded, consequences ensue and they could be temporarily shut out of production. As the game progresses, players are also rewarded for achieving an equilibrium between demand and production. If at any time the player uses up an entire fuel supply, that fuel supply can no longer work towards their total electrical output. If all fuel supplies are diminished, the game is terminated.

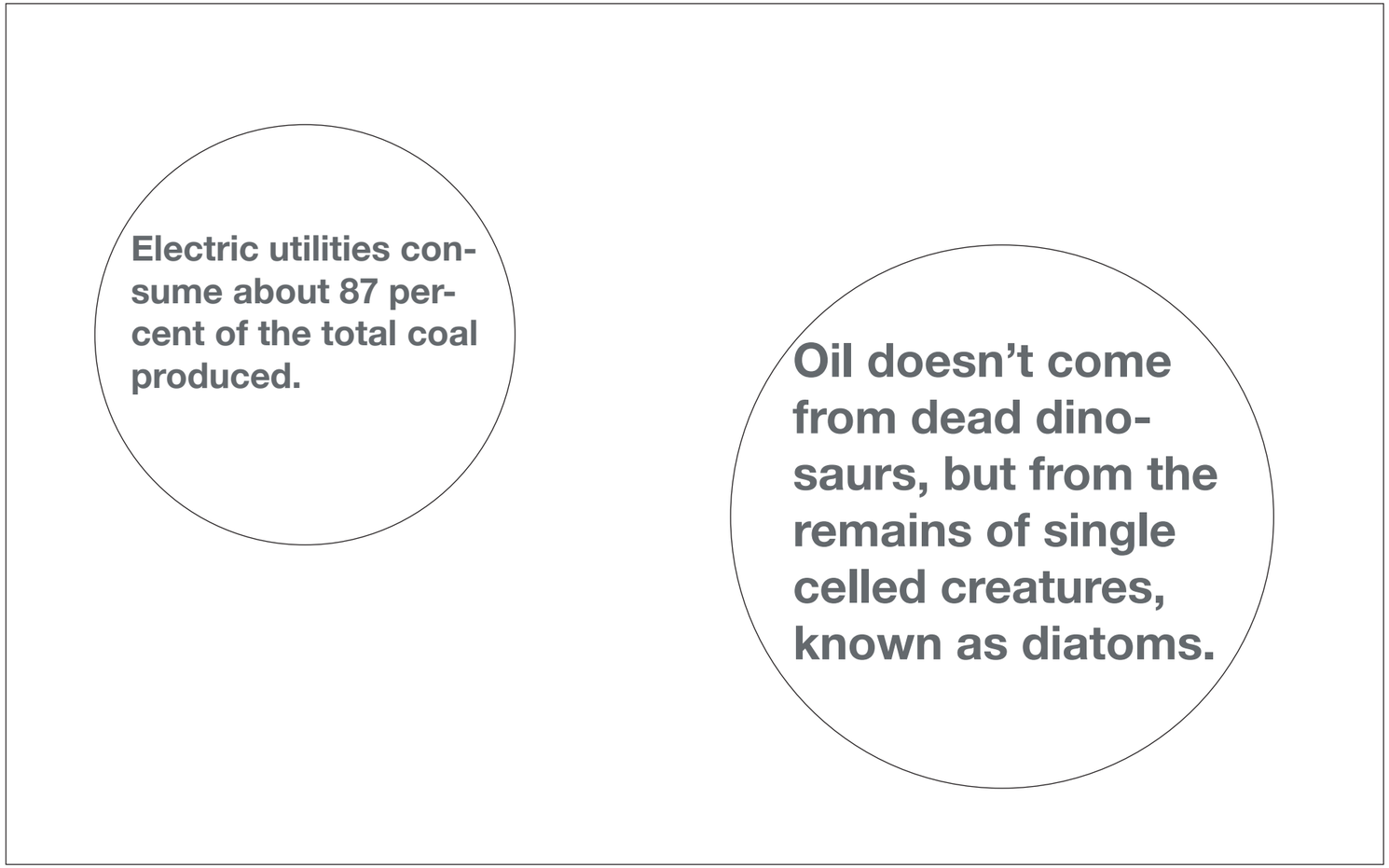
Both the screen and console respond to the players activity. Each fuel type is animated to show an increase in productivity (drilling gets faster, trucks came and go, tactile response increases), a decrease in productivity (more flora and fauna appear, but no GW are being accumulated, volume lowers), and over-production (flora and fauna disappear, reserves dry up quickly, environmental disasters occur, tactile feedback is maximized). Levers control the indicidual fossil fuels, and a roller ball controls the speed of transportation.

Players are playing for personal high scores (in the form of GW, or another energy unit), and team high scores. Team scores will be persistent on a screen located within eyeshot of the station.

## User Flow



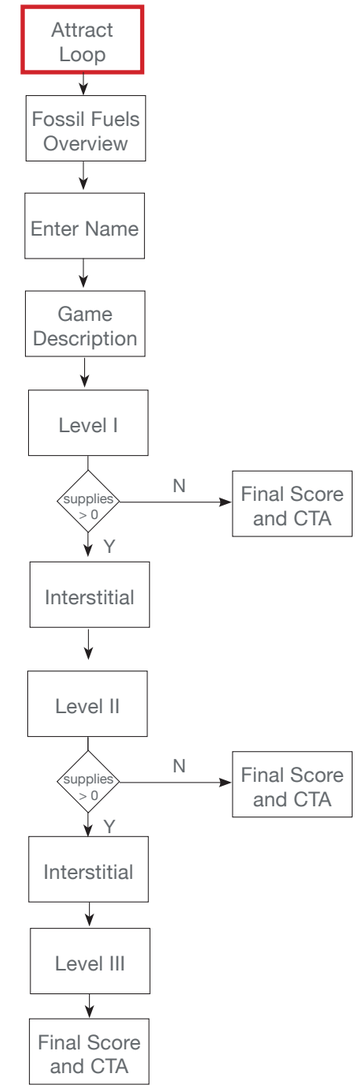
# EARTH: Attract Loop




**Screen Elements**

1. Animated “fun facts” about fossil fuels

## Where We Are in the Flow




## Roles & Responsibility

m = moey
gd = graphic designer

Attract Loop : 3D Animation - scott (m) , Short Fascinating Facts - heather (m), General Graphic Design for elements, placement, font sizes and colors. (gd)

# EARTH: Welcome Screen, Fossil Fuels Overview

## Welcome! A few things before we get started -

- Fossil fuels include any fuel that is created beneath the earth's surface from ancient plants and animals.

- Fossil fuels are non-renewable fuel resources extracted from the ground for use in powering electricity and fuels for vehicles.

- The three main types of fossil fuels include oil, coal, and natural gas.

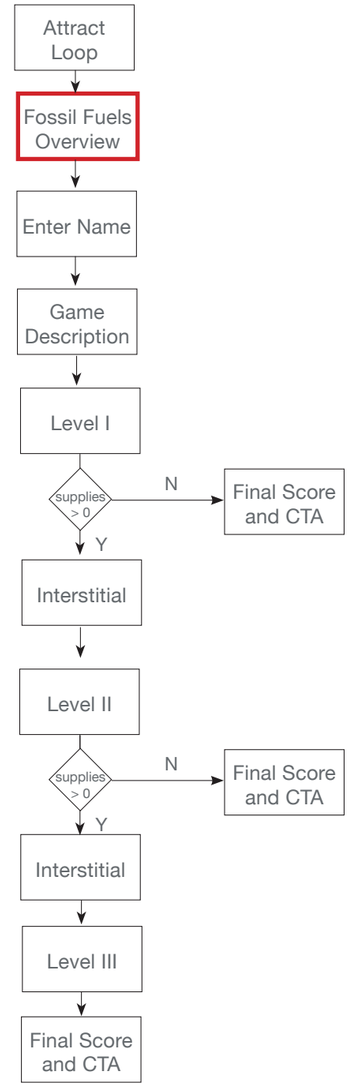
## Got all that? Great, let's go!

Next >

**Screen Elements**

1. Overview of fossil fuels.

**Where We Are in the Flow**

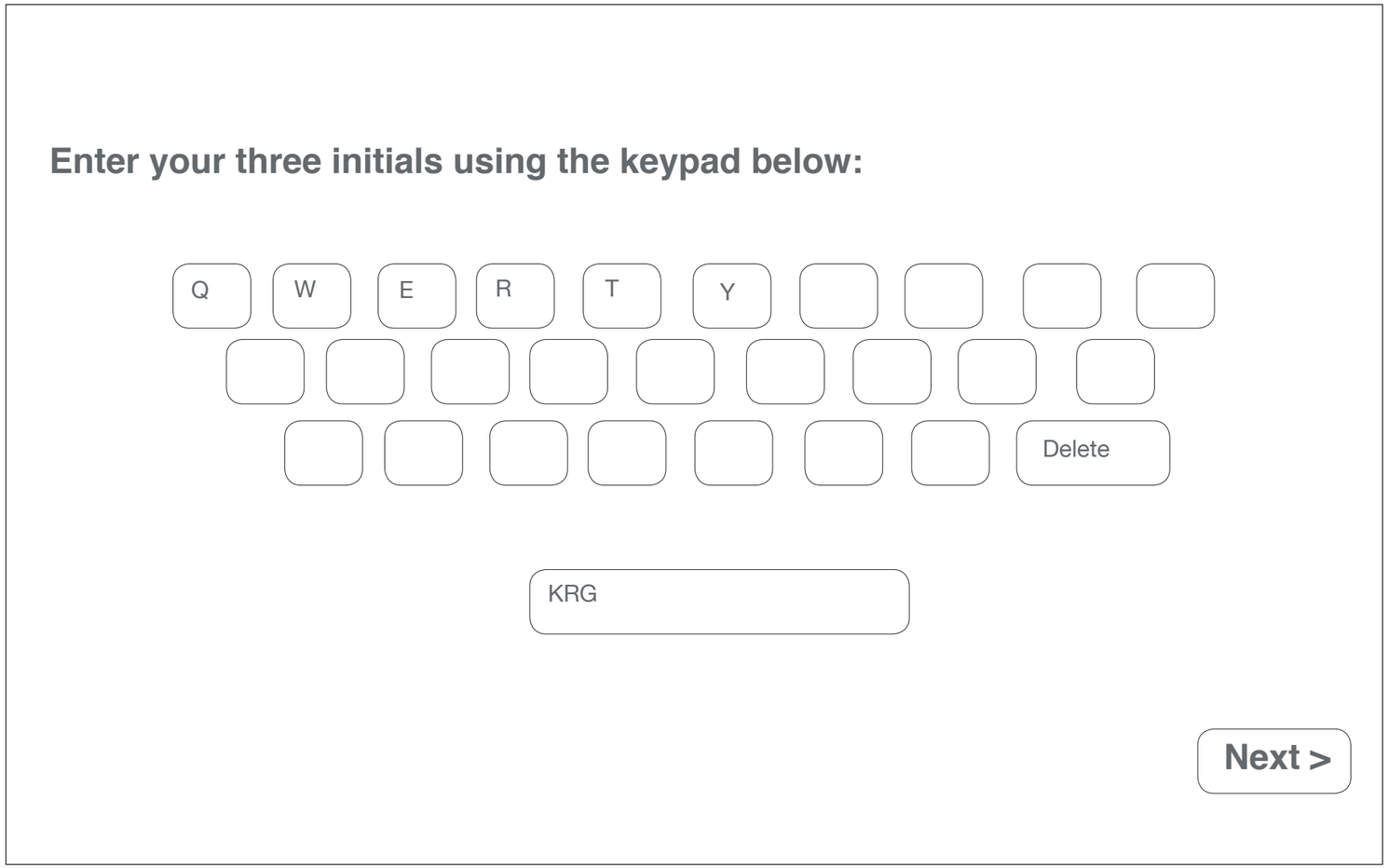



**Roles & Responsibility**

m = moey
gd = graphic designer

Overview copy- (m)
Animation (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

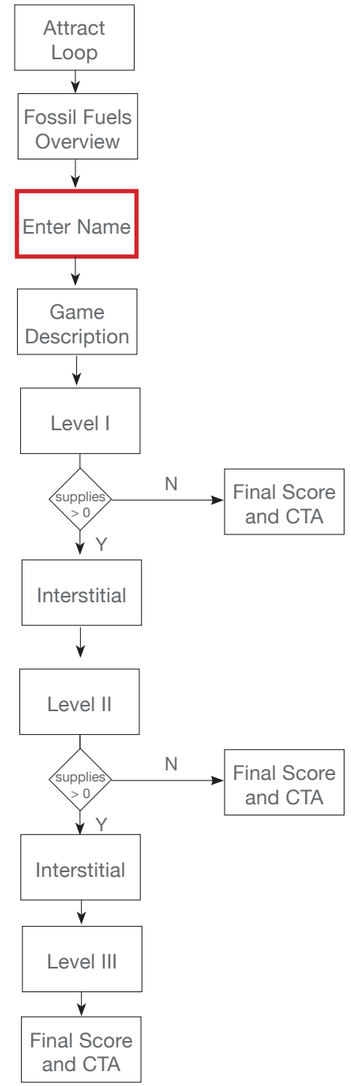
# EARTH: Enter Name




**Screen Elements**

1. On screen keypad to three initials.
2. Initials will be used for high scores and to personalize the experience.

## Where We Are in the Flow




## Roles & Responsibility

m = moey
gd = graphic designer

Copy- (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# EARTH: Game Description

## How To Play

The goal is to extract fossil fuels to produce electricity. You will need to balance production with demand for three fossil fuels: oil, coal, and gas. Each fossil fuel has it's own lever, and the trackball controls extraction and transportation.

Try it out!

Bonus GW will be rewarded for less environmental impact.

There are consequences with over production, and you may be penalized GW if you are not responsible.

Finally, keep an eye on your supplies. They are limited and need to last until 2050!

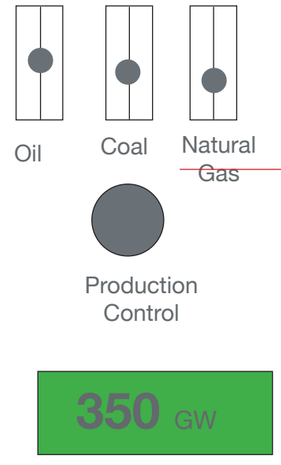


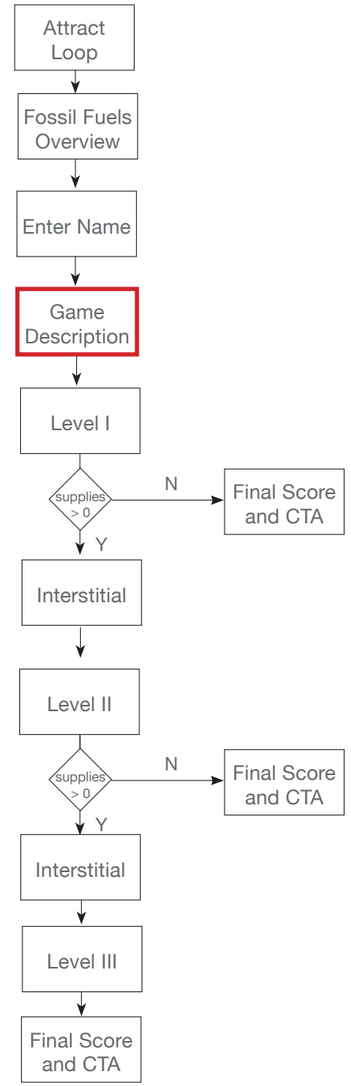

Diagram and real time demo

**Ready to play?** Start!

**Screen Elements**

1. Game description
2. Diagram of controllers and functions
3. Visual and demo on how to use the controllers (trackball and levers)

### Where We Are in the Flow

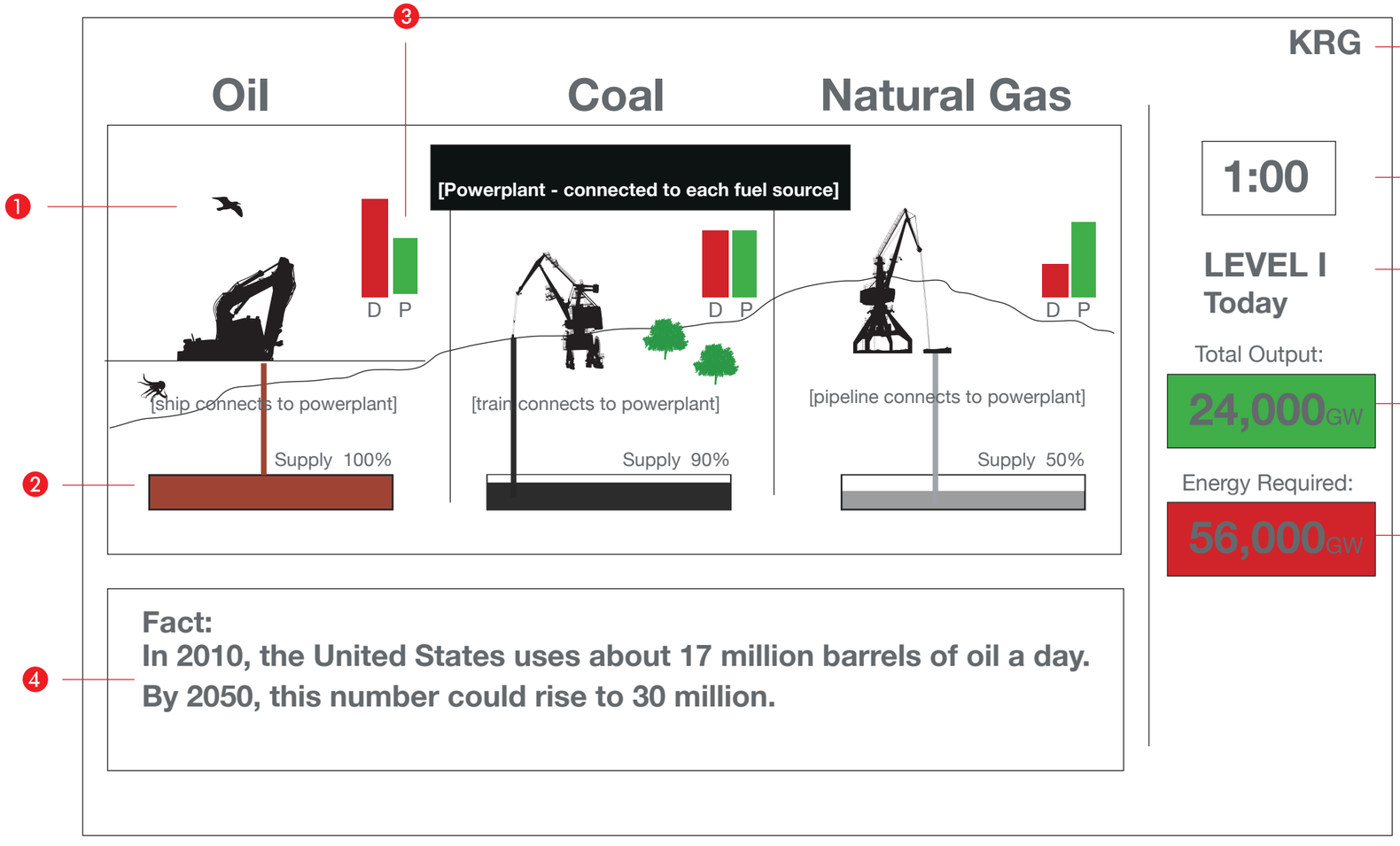



### Roles & Responsibility

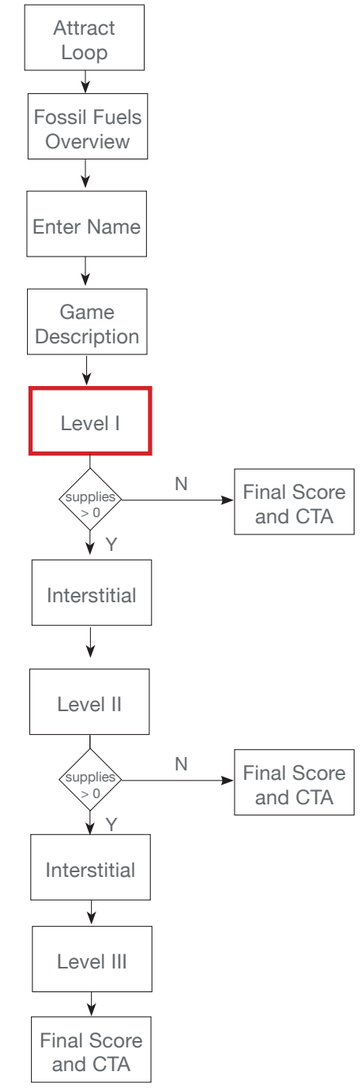
m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects. (gd)

# EARTH: Level I




## Where We Are in the Flow




### Screen Elements

1. Three views into the process of extracting fossil fuels, oil, coal and gas. Each window animates along with amount of production of that particular fuel (lever). Tactile feedback also kicks in during periods of peak production. Trackball controls extraction and transportation. Extraction and transportation is shown and is animated faster during high production periods. Environmental factors shown too (flora and fauna flourishes with balanced production, and diminishes with over-production).
2. The supply (reserves) pool decrease in response to production.
3. Bar graphs shows the demand for a particular fossil fuel, and the player is required to balance production with demand (using the lever that corresponds to each fuel). If the demand increases, but the production does not, a consequence is incurred. Likewise, if demand decreases, but production increases, a consequence is incurred.
4. Dialog box that shows facts, consequence incurred, and bonus actions.
5. Player's initials
6. Time count. 1 minute for each level (3 levels total)
7. Level Display
8. Amount of energy they have output so far
9. Amount of energy needed (the sum of the demands of oil, coal, and gas)

• Powerplant in background with ship, train and pipe connecting to the three fossil fuels..

In visual design, production and demand graph could be united as one bar graph.

### Roles & Responsibility

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (drilling - black line goes down). (gd) 2D animations of drilling and mining machines and transportation system. (m) 2D animation of power plant. (m)
Graphics of terrain with and cut away geological layering. (gd - must provide screen prior to animation on top of it)

# EARTH: Level I - Level II Interstitial

**KRG**

You made it to year 2025!

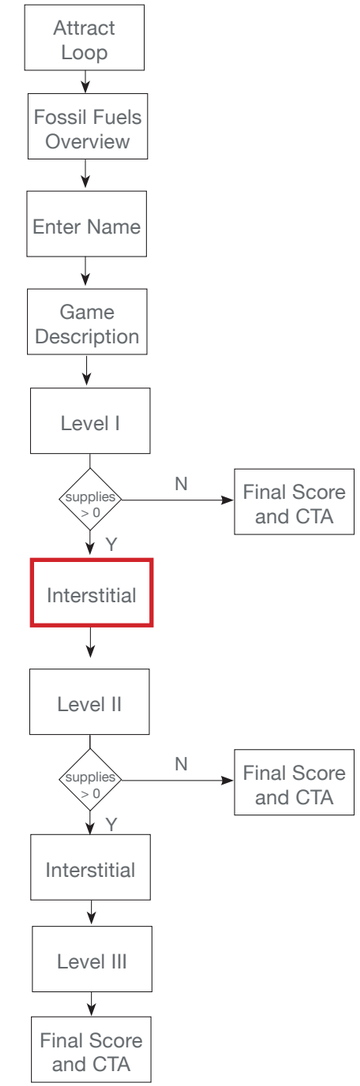
With the future comes greater challenges. More fuel is required, and an increase in production means greater chance for environmental devastation. Be careful!

Next >

**Screen Elements**

1. interstitial between Levels 1 & 2- states the different circumstances and challenges for extraction in the future.
2. Time display (15 seconds for the interstitial)

**Where We Are in the Flow**

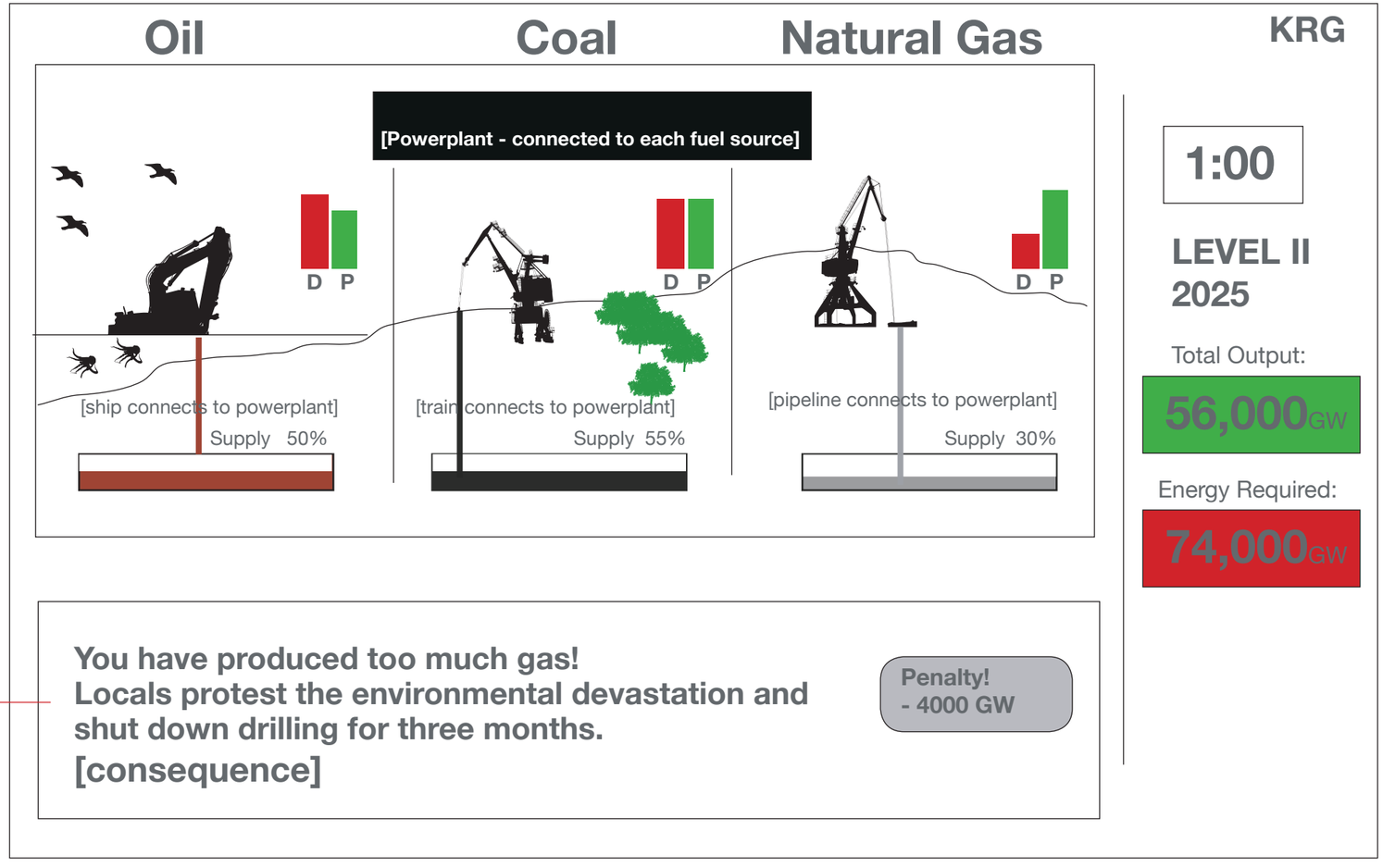



## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Animation (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

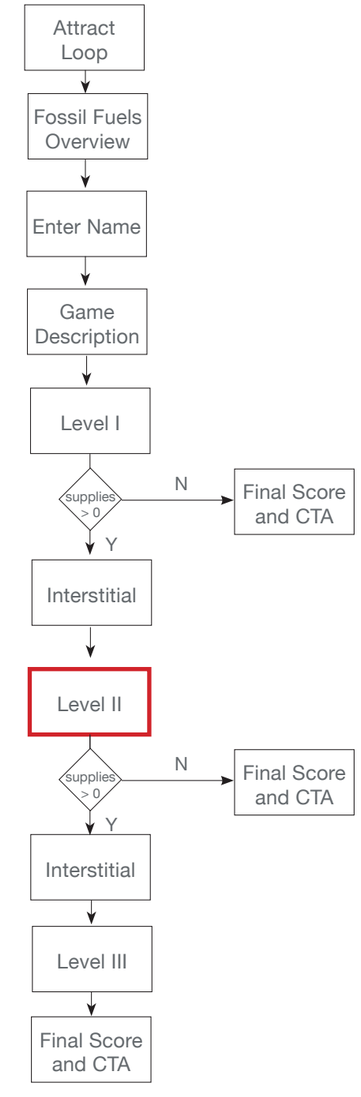
# EARTH: Level II




**Screen Elements**

1. Dialog box displaying a consequence of over-production. When the player over produces one fuel (makes 20% more of the demand), a consequence is incurred, and they incur a penalty (in GW).

## Where We Are in the Flow




## Roles & Responsibility

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (drilling - black line goes down). (gd) 2D animations of drilling and mining machines and transportation system. (m) 2D animation of power plant. (m)
Graphics of terrain with and cut away geological layering. (gd - must provide screen prior to animation on top of it)

# EARTH: Level II - Level III Interstitial

**KRG**

You’ve almost made it to year 2050!

The U.S. population has soared to 438 million (from 308 million today). More people means more fuel required, and less available land for drilling and mining. More land is protected, but still it’s up to each of us to minimize carbon dioxide emissions into the air.

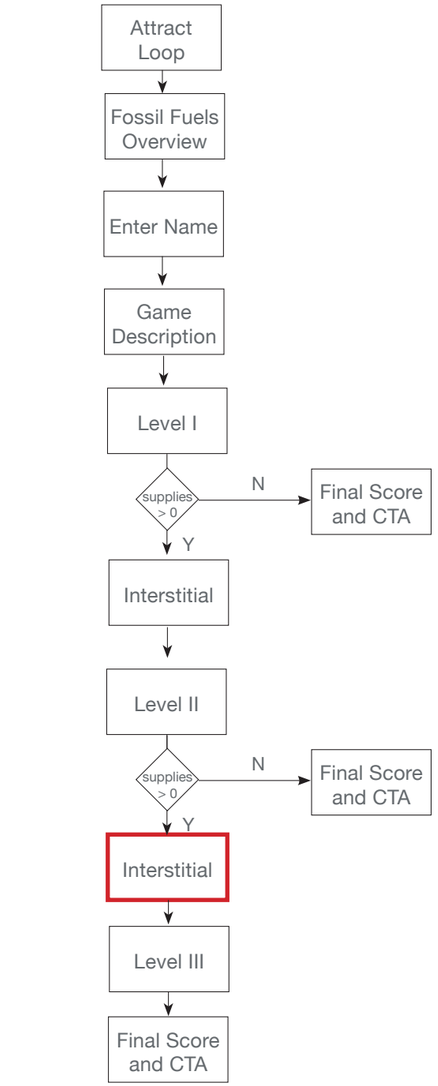
Go forth!

Next >

**Screen Elements**

1. interstitial between Levels 1 & 2- states the different circumstances and challenges for extraction in the future.

**Where We Are in the Flow**



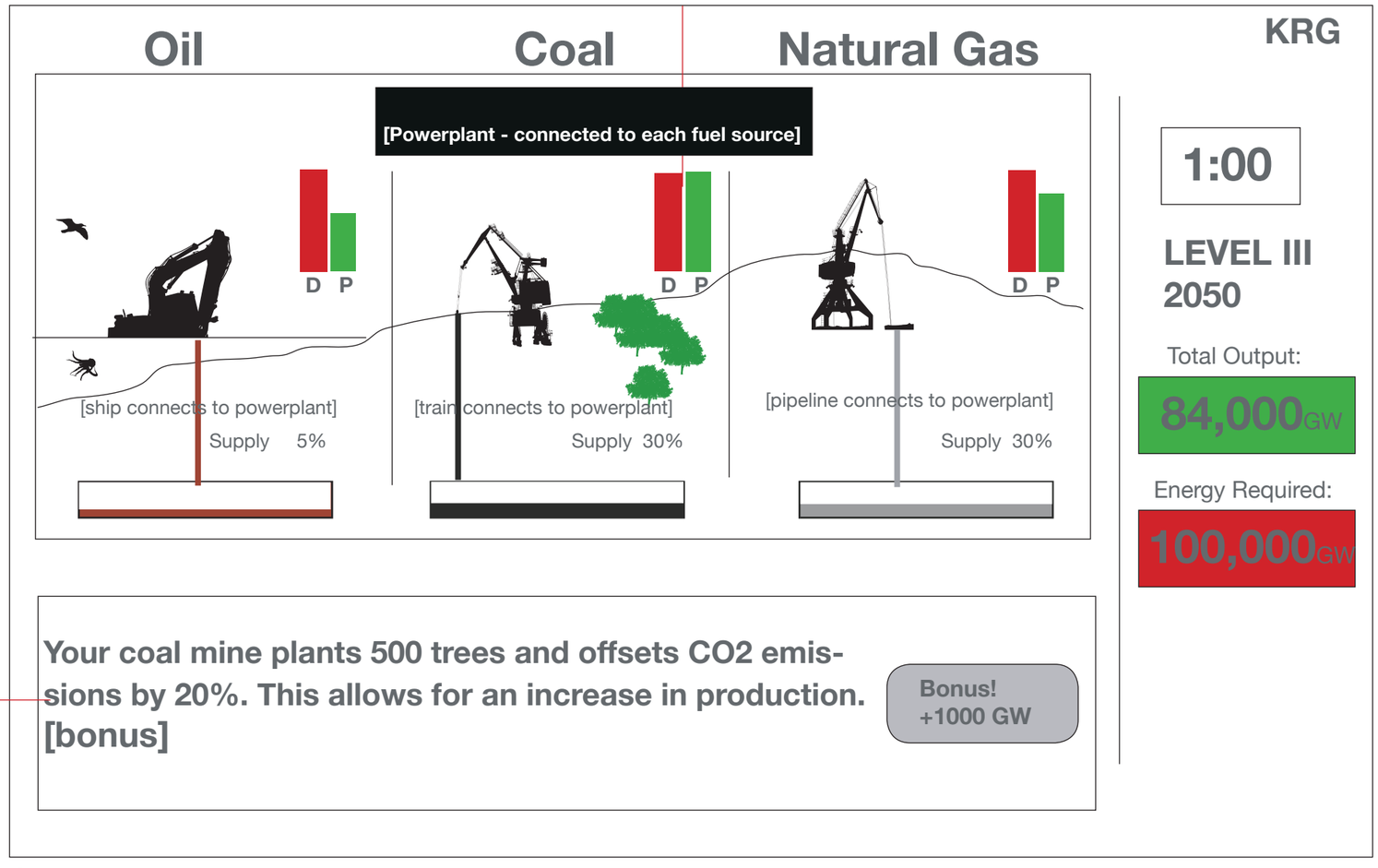

## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Animation (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# EARTH: Level III

balanced for ten seconds

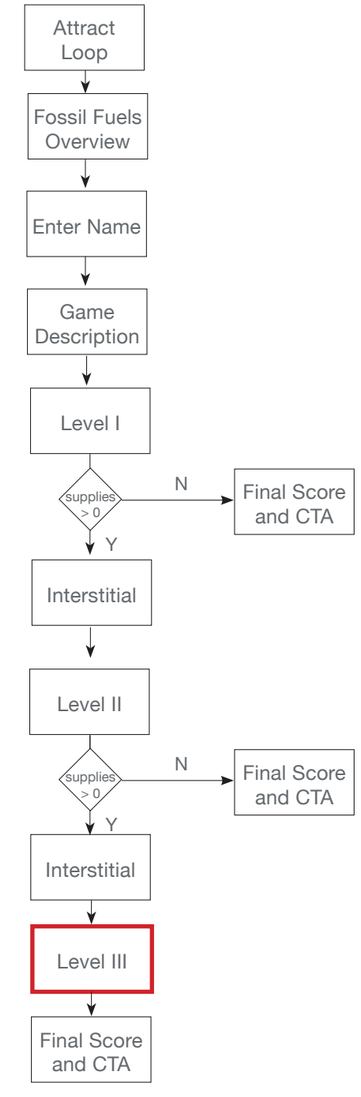



1

**Screen Elements**

1. Dialog box displaying a bonus action. If the player has balanced the production with demand for ten seconds, they are rewarded with a bonus action.
• Bonus accrued in GW

## Where We Are in the Flow




## Roles & Responsibility

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (drilling - black line goes down). (gd) 2D animations of drilling and mining machines and transportation system. (m) 2D animation of power plant. (m)
Graphics of terrain with and cut away geological layering. (gd - must provide screen prior to animation on top of it)

# EARTH: Final Score and Call to Action

**Your energy production: 80,334 GW**
**Penalized: 4,000 GW**
**Bonus efficiency: 2,000 GW**

**Total: 82,334 GW**

This is enough energy to power five houses for the day.

**KRG**

**High scores**

| | |
|---|---|
| LBJ | 95,568 GW |
| TYL | 94,568 GW |
| BCG. | 94,568 GW |
| NMU | 93,568 GW |
| AST | 92,568 GW |

In the time it took you to play this game, the world will have used up about 8,000 barrels of oil - 336,000 gallons; at 1000 barrels per second, it's going fast.

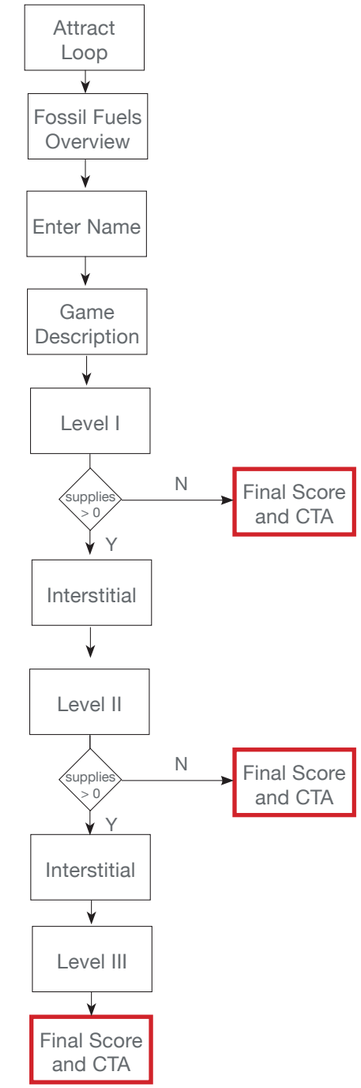
What can you do today to conserve resources?

- Plant a tree
- Turn off the lights when you leave a room.
- Recycle recycle paper, plastic, newspaper, glass and aluminum cans.

**Screen Elements**

1. At the end of the game, this screen displays your energy production (total GW and an example of what can be done with this energy, like power five houses), and the top 5 high scorers (for that day?)
2. This Screen also gives a fact about how many fossil fuels were used during the five minutes of game play, and actionable items to help remedy the situation.

**Where We Are in the Flow**




## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Animation (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

## FIRE (Solar)

- Description of Experience
- User Flow & Logic
- Wireframes

# Solar: Experience

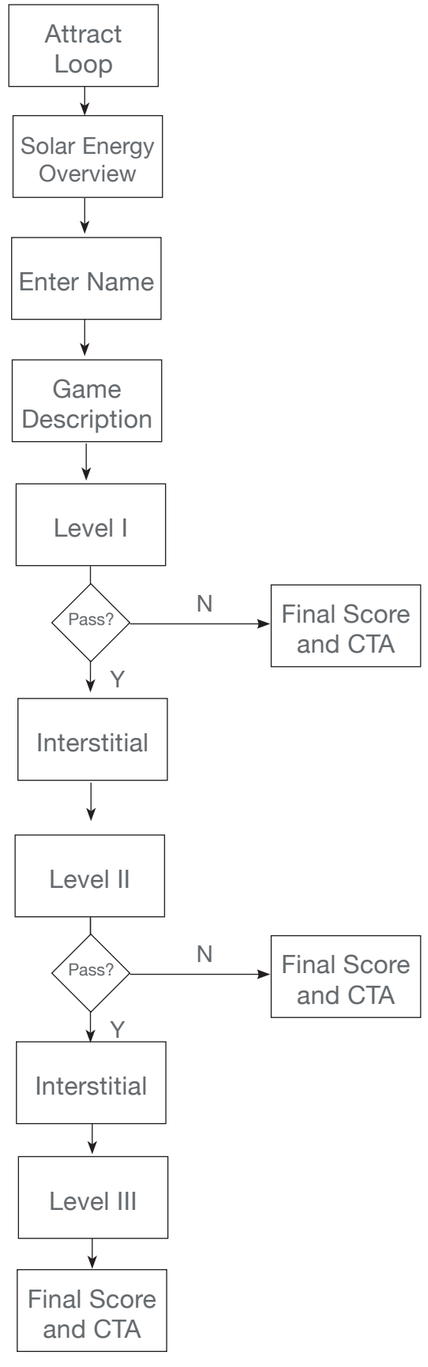
## Description

Three participants will be generating electrical energy from the sun using standard photovoltaic solar panels. the interface consists of a portrait mounted touch screen on a central pivot, mirroring the mount and look of real world solar panels. The motion will be up and down and side to side.

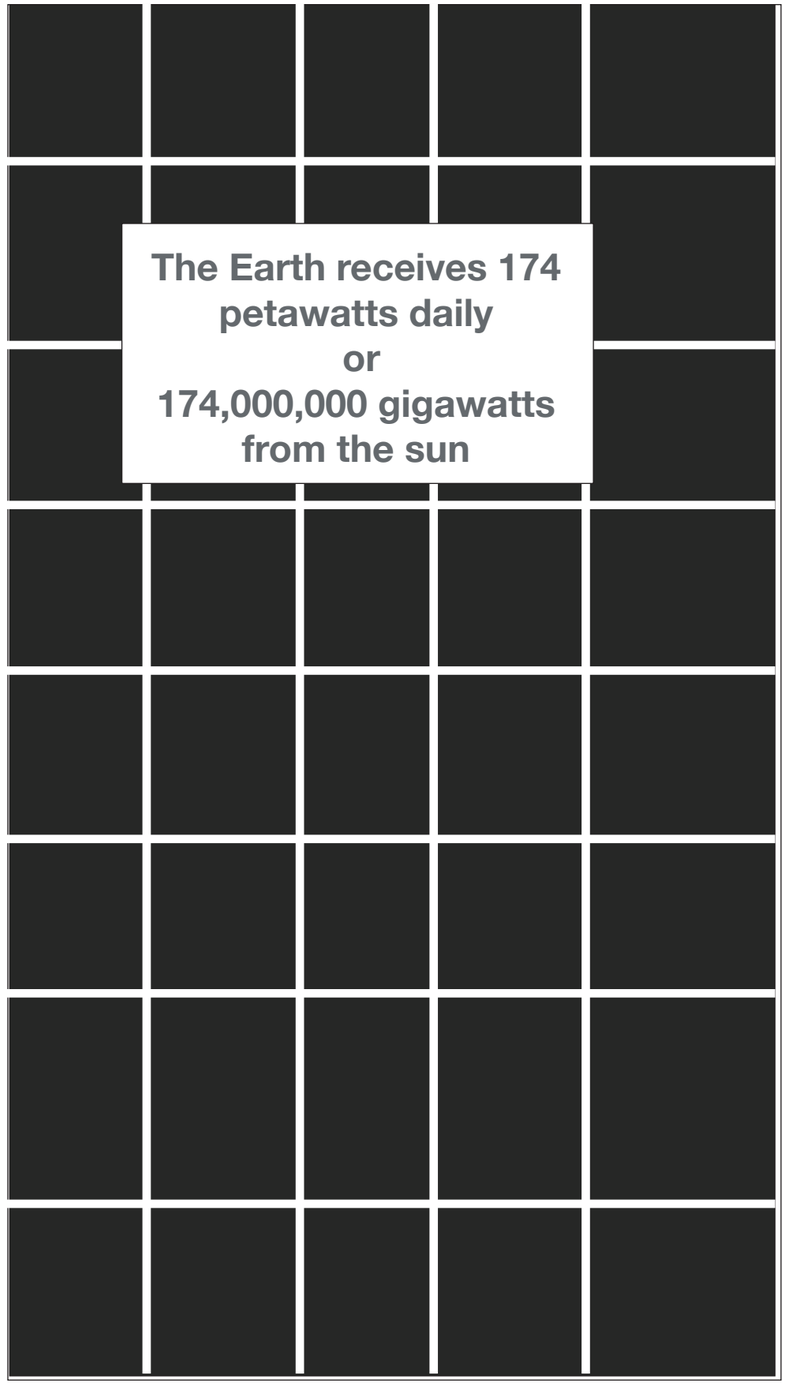
The player approaches the station and is greeted by a screen that looks like a photovoltaic solar panel. The screen is also animating facts about solar energy. When she touches the screen or the handles, a welcome screen appears. The welcome screens gives an introduction to solar energy and it's advantages and challenges. The player enters her name so her experience can be a bit more personalized, and if she is a high scorer, her name will be displayed. After entering her name, she advances to a screen that explains how to play the game and offers her a chance to practice using the controls. She selects start and is taken to Level I. In this level she must "catch" the sun's reflection with the solar panel in order to power a toy car. The car goes from A to B within one minute and she advances to Level II. In this level, she is expected to produce as much energy as she can for an entire day (scaled down to one minute). Challenges include steering away from cloud cover and maximizing her time catching the sun's reflection as it moves across the sky. The next level, Level III, imposes even more challenges. The orientation of the solar farm is a bit different so that the directions of east and west are not exactly the left and right side of the screen. So she must pay attention to cardinal north and predict where the sun will be rising in order to catch the morning reflection. Also, a dust storm ensues and she must clean her solar panel by tilting it up and downward side to side.

At the end of the game, she is shown how many GW each level produced. One solar panel will produce considerably less than an entire solar farm, and the biggest solar farms can produce huge amounts of energy. High scores are displayed as well as actions she can take towards the advancement of solar power.

## User Flow



# FIRE (Solar): Attract Loop

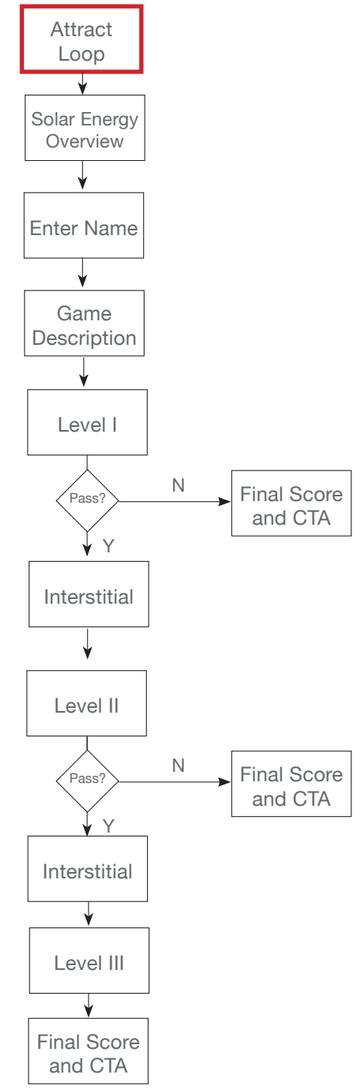



**Screen Elements**

1. Animated “fun facts” about solar energy
2. Attract loop animates on top of solar panel image.

**In one year, the earth receives twice as much solar energy as will EVER be obtained from all of the Earth’s non-renewable resources of coal, oil, natural gas, and uranium combined.**

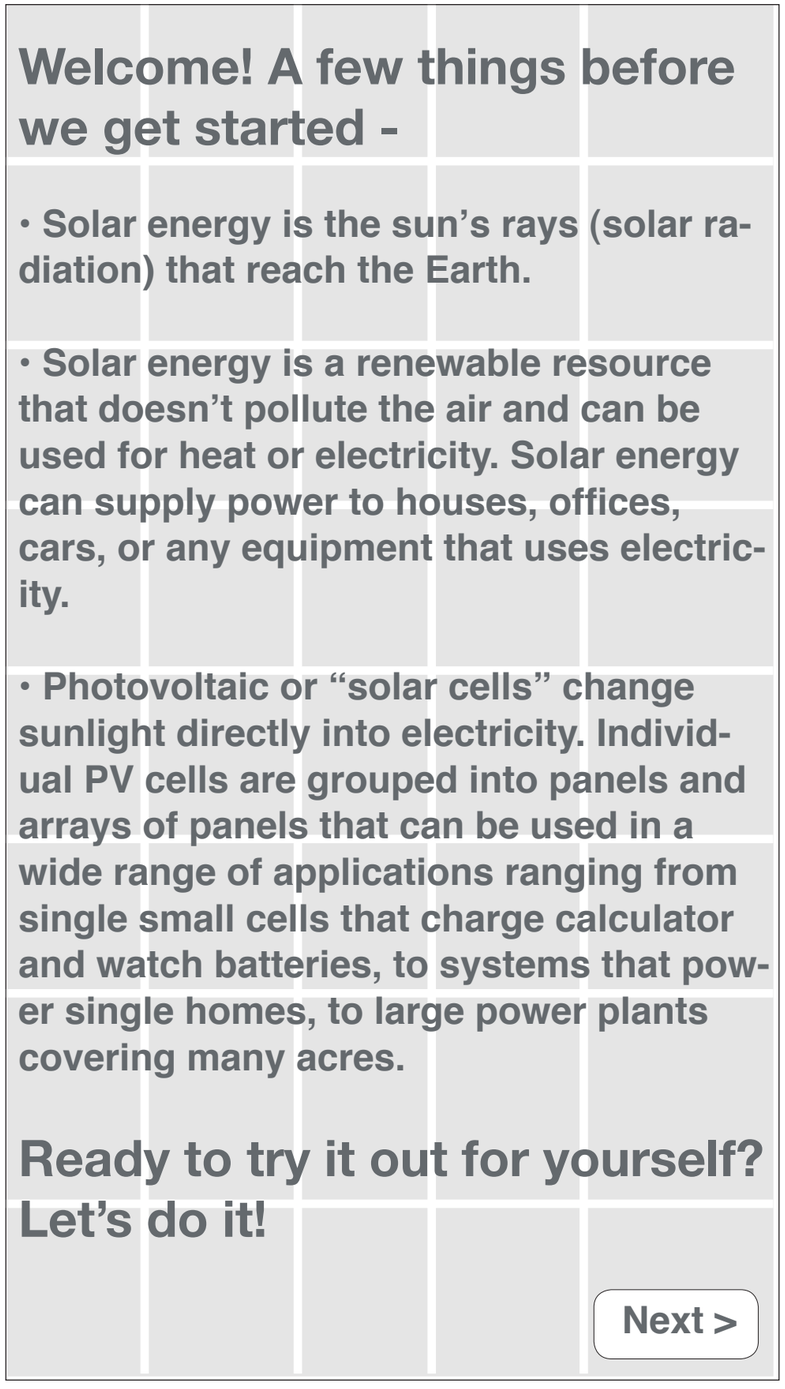
**Where We Are In the Flow**




**Roles & Responsibility**

Copy - (m)
Attract Loop : 3D Animation - scott (m) , Short Fascinating Facts - heather (m), General Graphic Design for elements, placement, font sizes and colors. (gd)

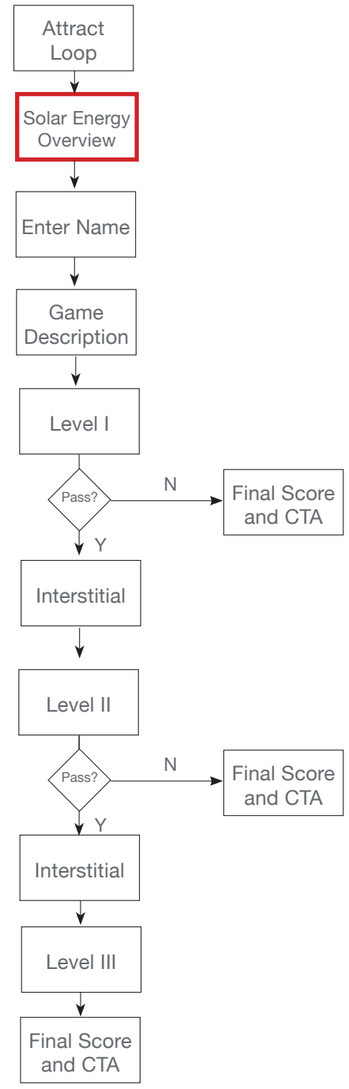
# FIRE (Solar): Welcome Screen, Solar Energy Overview




**Screen Elements**

1. Brief primer on solar energy with facts that touch upon the game they are about to play.
Prompt to start.
Next button

## Where We Are In the Flow

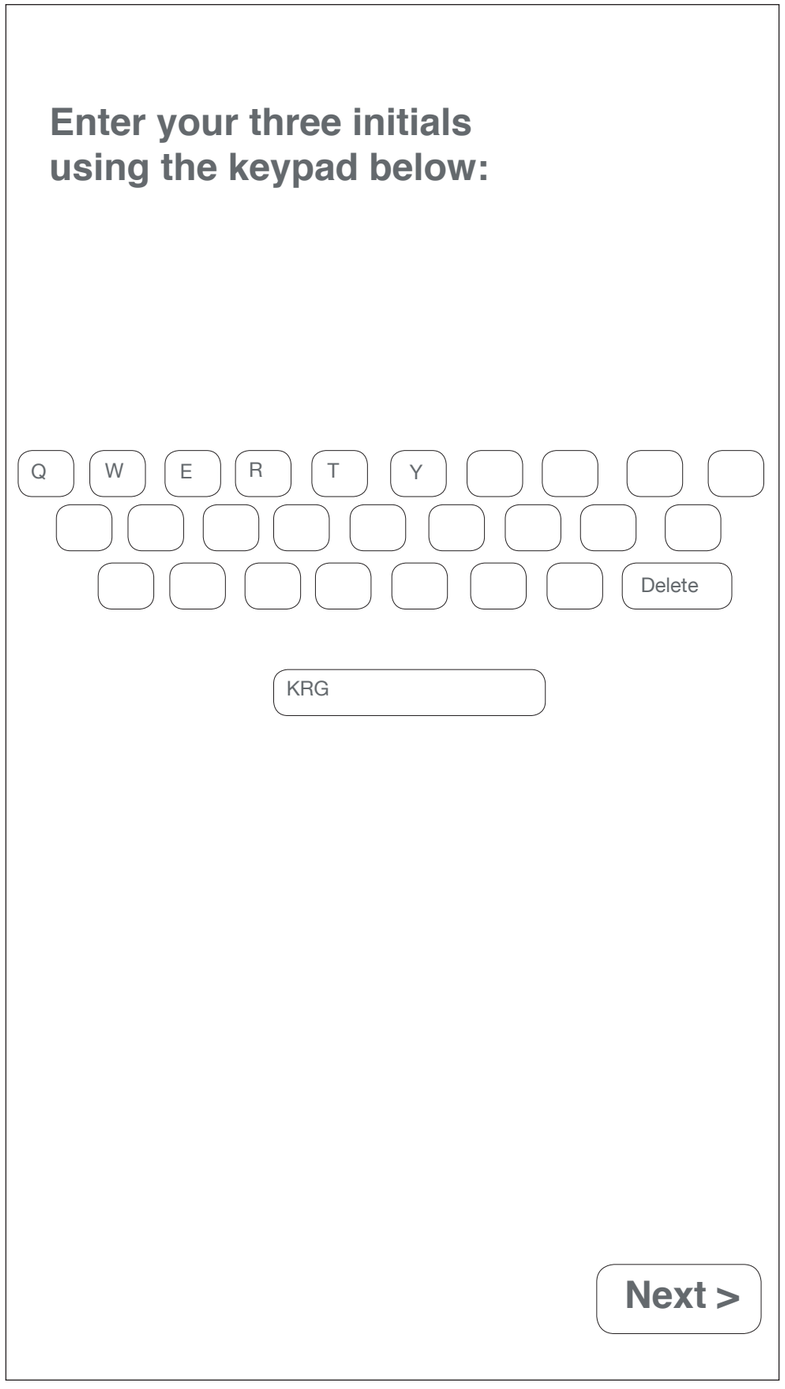



## Roles & Responsibility

m = moey
gd = graphic designer

Copy- (m)
Animation- Scott (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

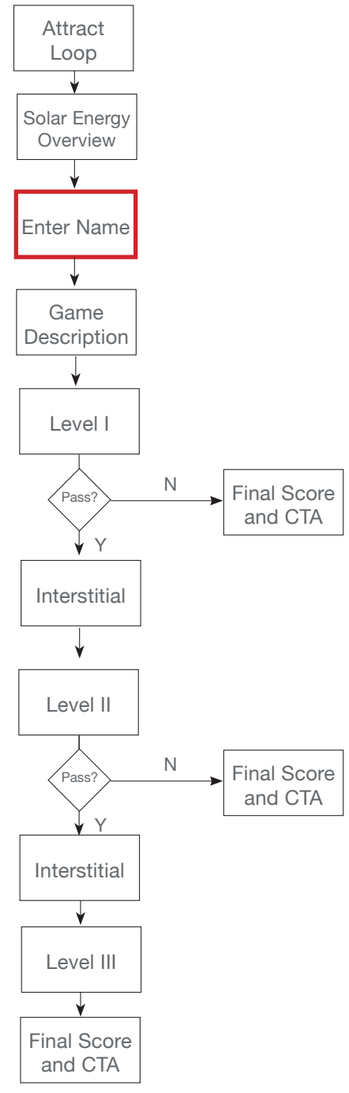
# FIRE (Solar): Enter Name




**Screen Elements**

1. On screen keypad to three initials.
2. Initials will be used for high scores and to personalize the experience.

## Where We Are In the Flow

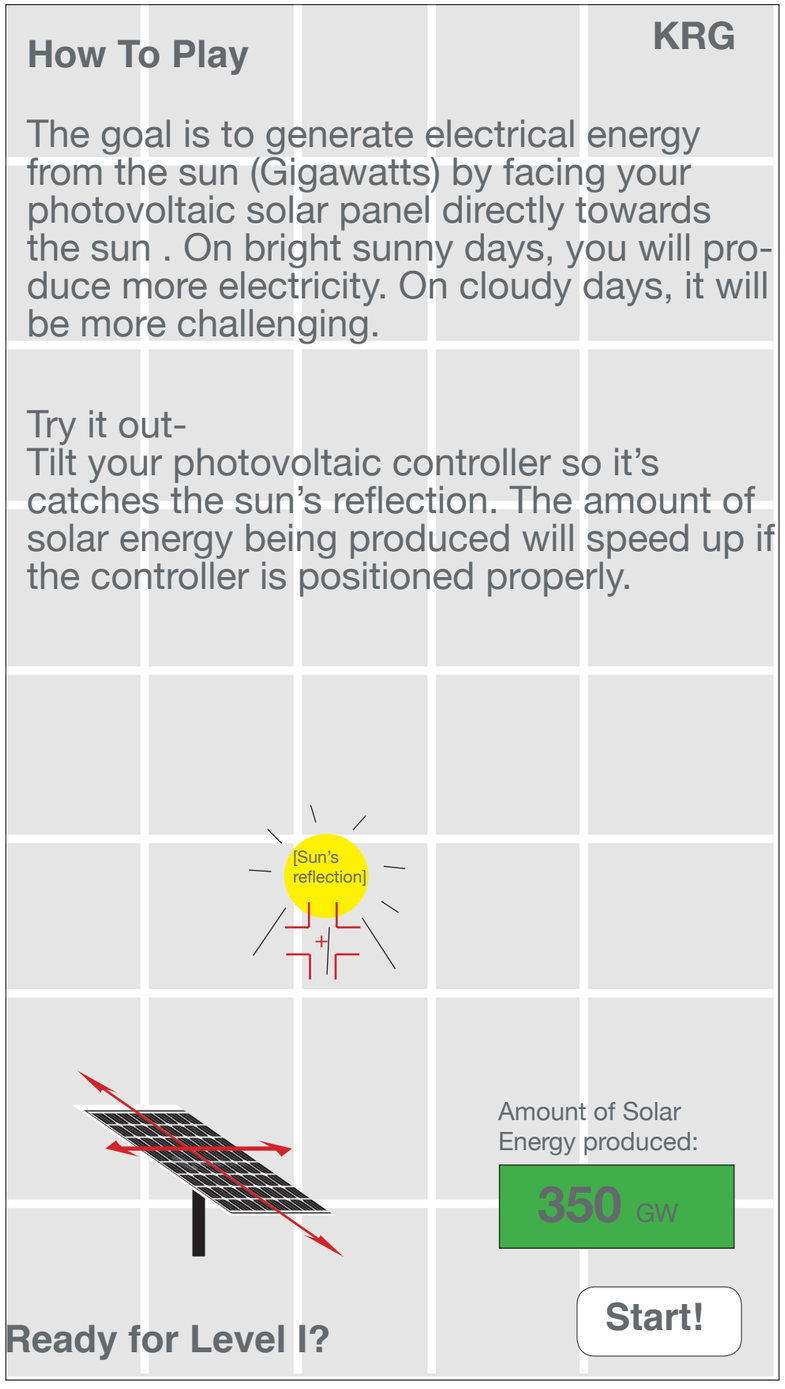



## Roles & Responsibility

m = moey
gd = graphic designer

Copy- (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# FIRE (Solar): Game Description



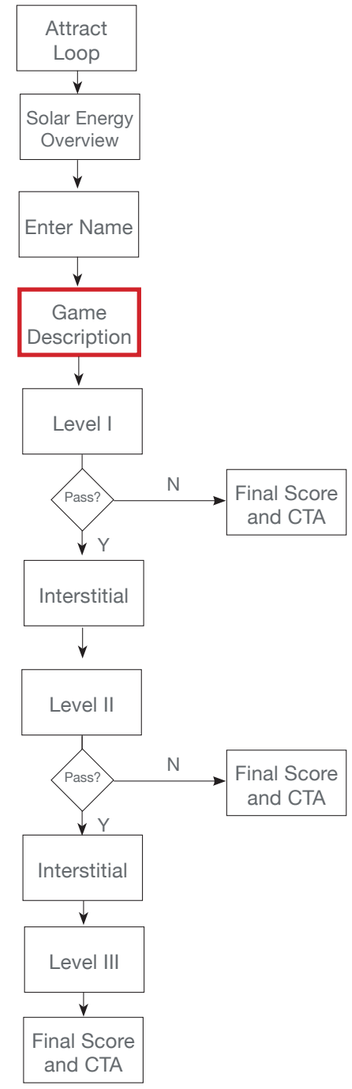

**Screen Elements**

1. Description about how to play the game (copy needs tightened)
2. Players can demo the controller here so they can practice how it works, and better understand the relationship between the photovoltaic on the screen and the one in hand.

How it works:

- A graphic of the sun's reflection moves across the screen.
- The player has to move their solar panel to control the cross hairs.
- The solar panel animates with the tilting of the physical controller

**Where We Are In the Flow**

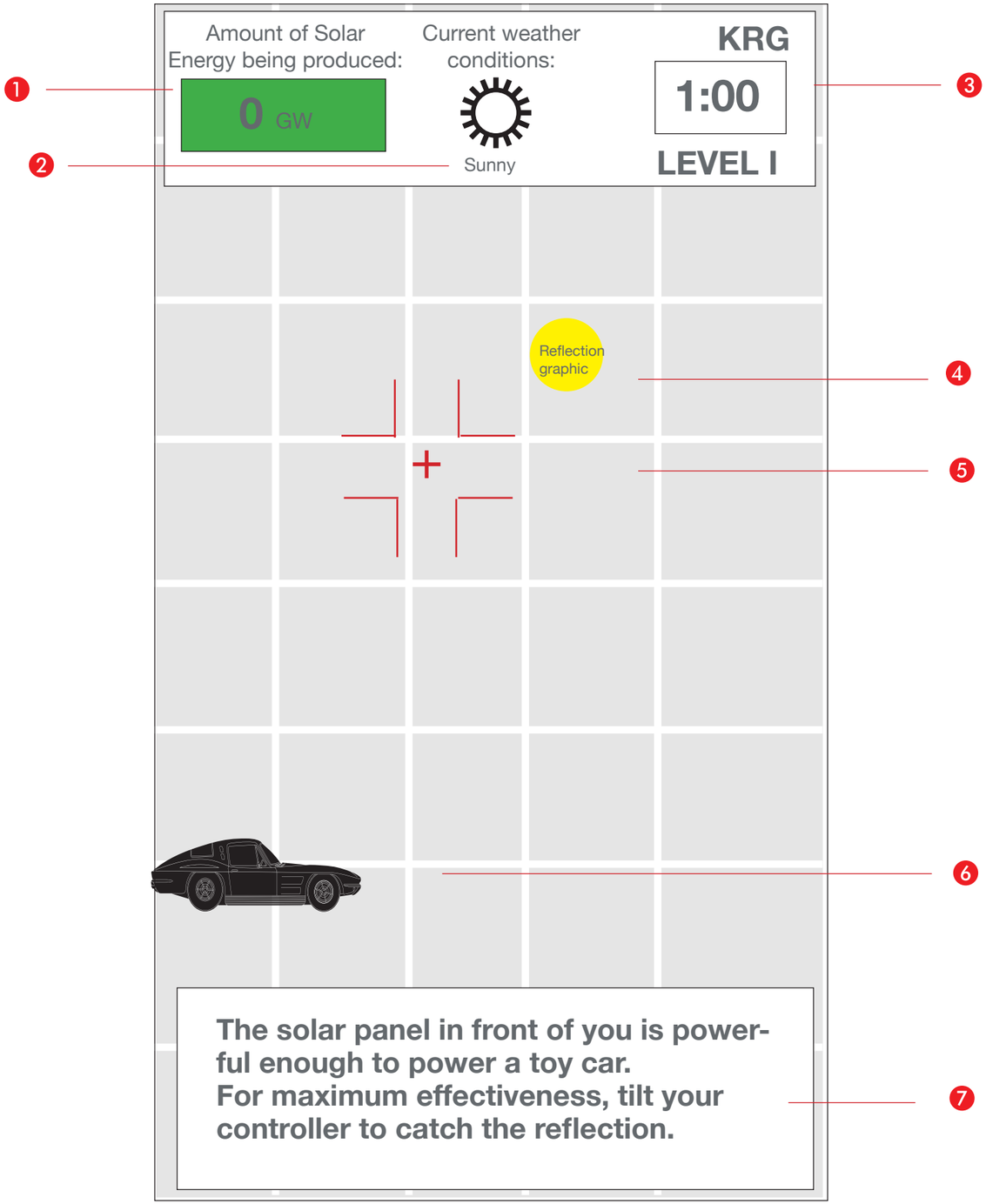



## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states and other small effects. (gd)

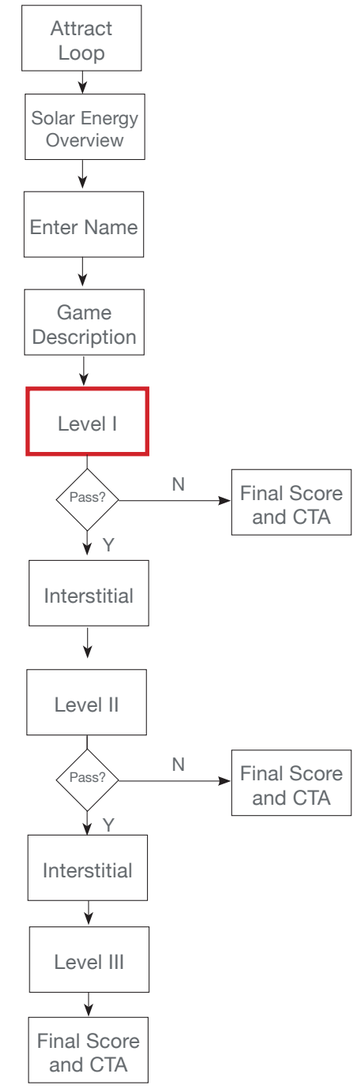
# FIRE (Solar): Level I




## Screen Elements

1. Amount of energy the player has produced (for that level).
2. Current weather and sky conditions. The weather changes for each level to make the game more challenging. Nighttime also transitions in, and the moon replaces the sun after 1 minute of play. Goal is to teach the relationship between weather and the time of day to the solar energy output.
3. Player's name, timer, and Level display.
4. Reflection Graphic. This is what the player is trying to "catch" with their solar panel controller. The Reflection Graphic animates across the screen (from east to west) to simulate the sunrise and sunset.
5. Cross hairs. When the cross hairs are over the reflection graphic, (the solar panel is facing the sun), more energy is produced.
6. The car moves from left to right across the screen depending on how much energy is being produced.
7. Dialog box that shows how-to. facts, warnings, consequence incurred, tips and bonus actions. (How-to shown)

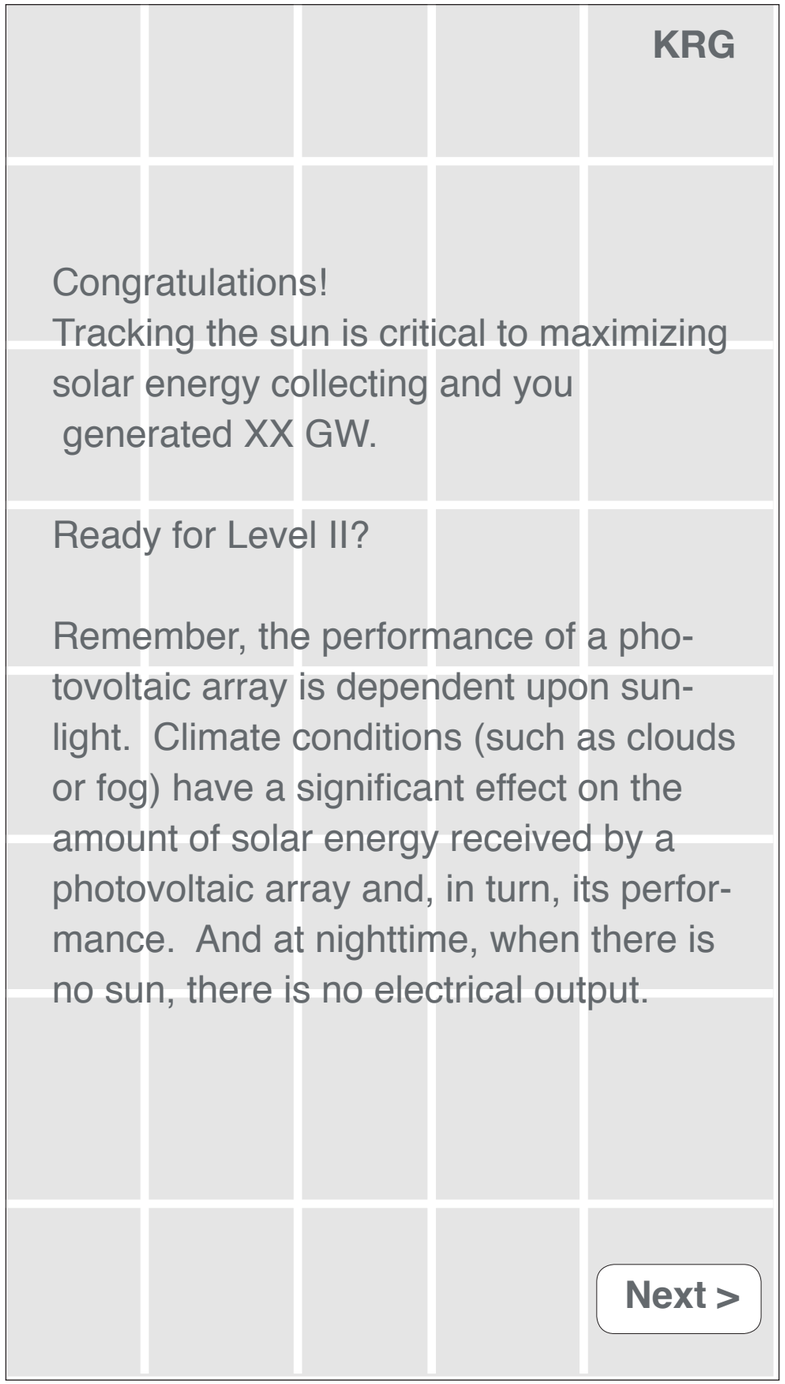
## Where We Are In the Flow




## Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (gd). CG background (gd), animated solar cells (m), animated sun (m), animated storms (dust, snow) (m), animated car (m - flash programmer not scott)

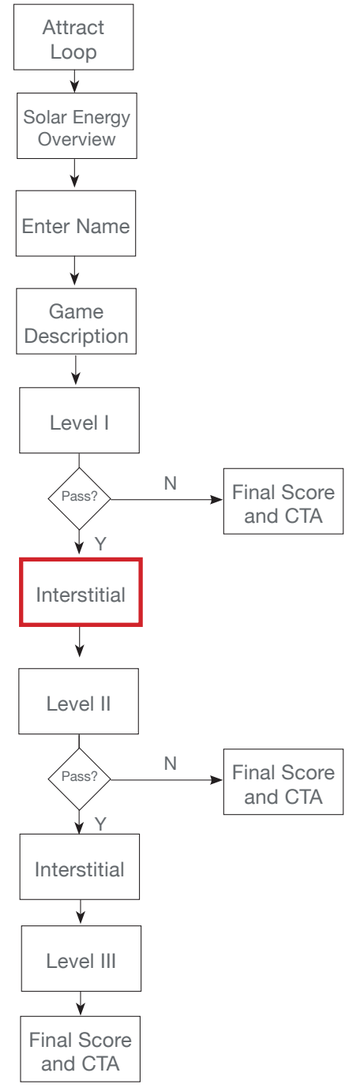
# FIRE (Solar): Level I - Level II Interstitial




**Screen Elements**

1. interstitial between Levels 1 & 2- states the different circumstances and challenges for capturing solar energy and the energy the player just produce (so we can show the difference in production for each level and type of solar panel arrangement)

**Where We Are In the Flow**

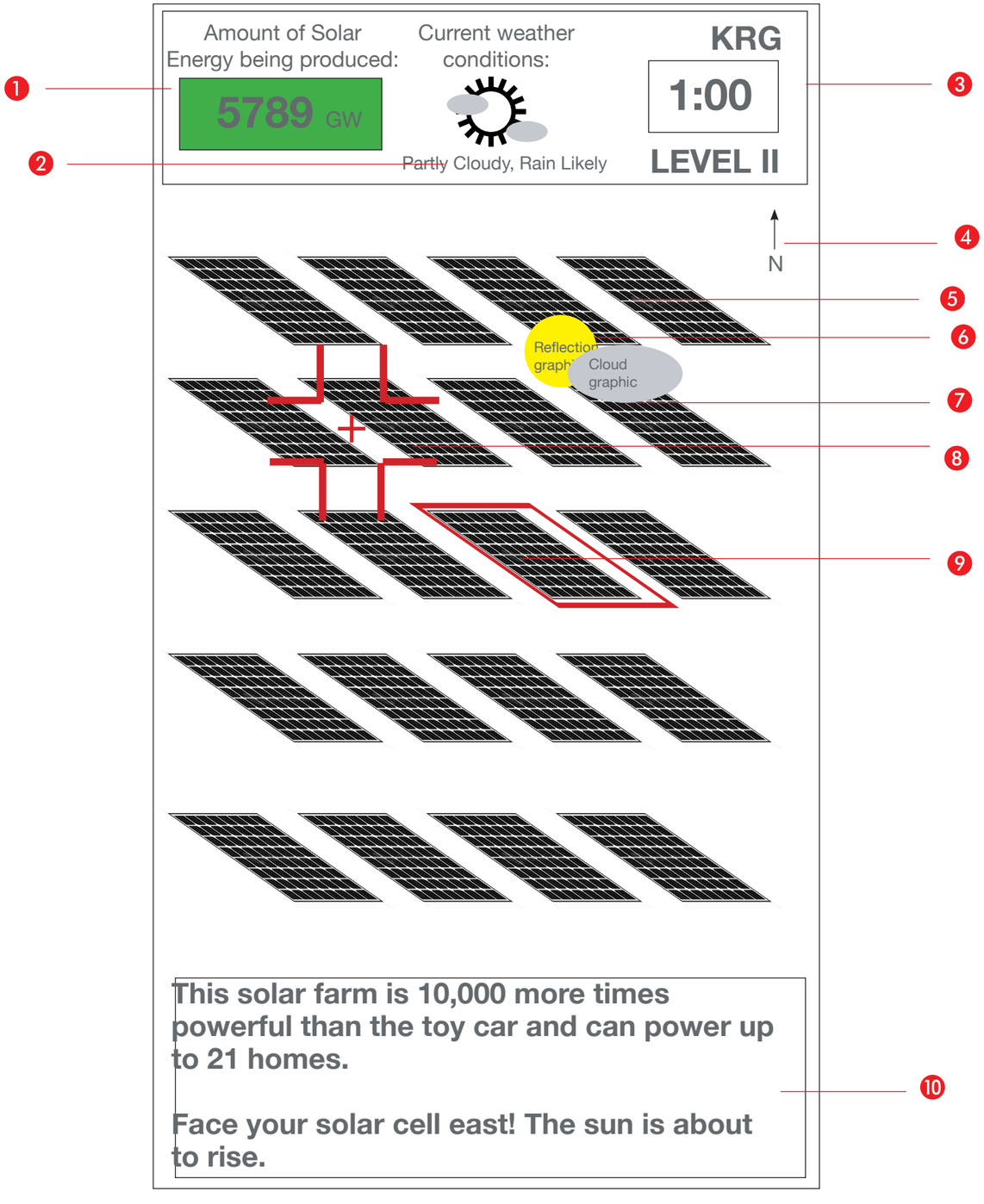



## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects. (gd)

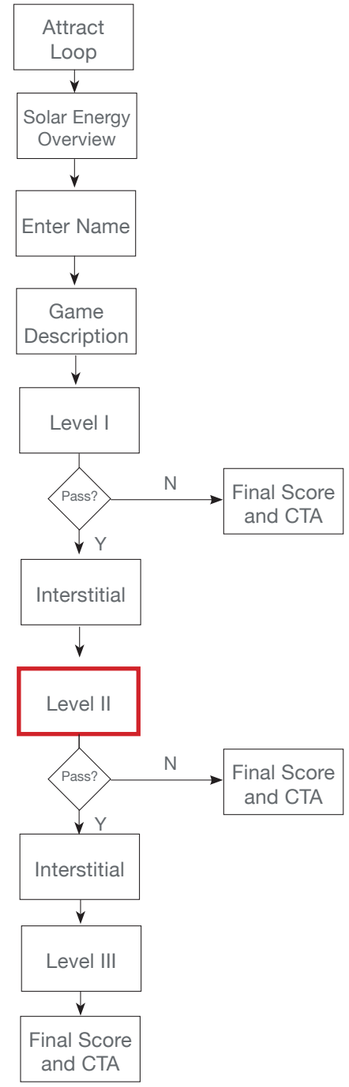
# FIRE (Solar): Level II




## Screen Elements

1. Amount of energy the player has produced (for that level).
2. Current weather and sky conditions. The weather changes for each level to make the game more challenging. Nighttime also transitions in, and the moon replaces the sun after 1 minute of play. Goal is to teach the relationship between weather and the time of day to the solar energy output. For Level II, the weather is cloudy.
3. Player's name, timer, and Level display.
4. Compass. The compass help the player orient where the sun's path.
5. Solar Farm. In Level II, a solar farm is shown.
6. Sun Reflection Graphic. The animation starts at dawn, just before sunrise. the sun travels from right to left, with clouds periodically blocking and obscuring the reflection.
7. Cloud Graphic. The clouds appear intermittently during the game play.
8. Cross hairs. The closer the sun graphic is to the centerpoint of the cross hairs, the more energy is produced.
9. The Player's solar panel (the one they are specifically controlling) is highlighted. All animated solar panels are in sync with the panel being controlled by the player.
10. Dialog Box. Shows how-to. facts, warnings, consequence incurred, tips. A fact and a tip are shown.

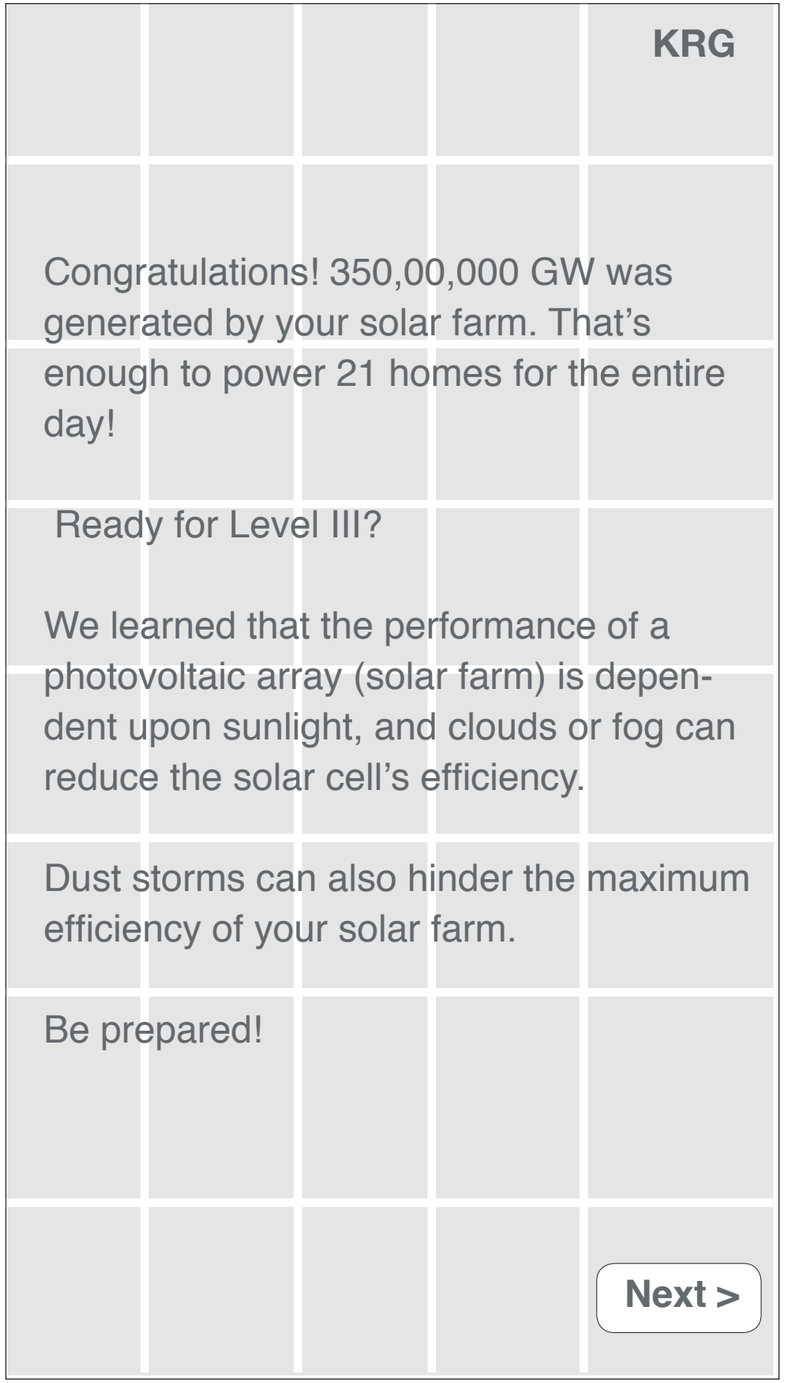
## Where We Are In the Flow




## Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (gd). CG background (gd), animated solar cells (m), animated sun (m), animated storms (dust, snow) (m), animated car (m - flash programmer not scott)

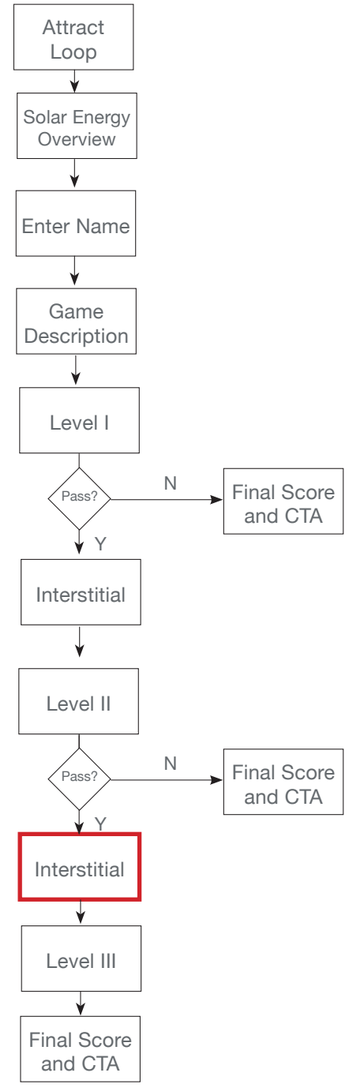
# FIRE (Solar): Level II - Level III Interstitial




**Screen Elements**

1. interstitial between Levels 1 & 2- states the different circumstances and challenges for capturing solar energy. The amount of energy the player produced during Level II is displayed.
2. Time display (15 seconds for the interstitial)

**Where We Are In the Flow**

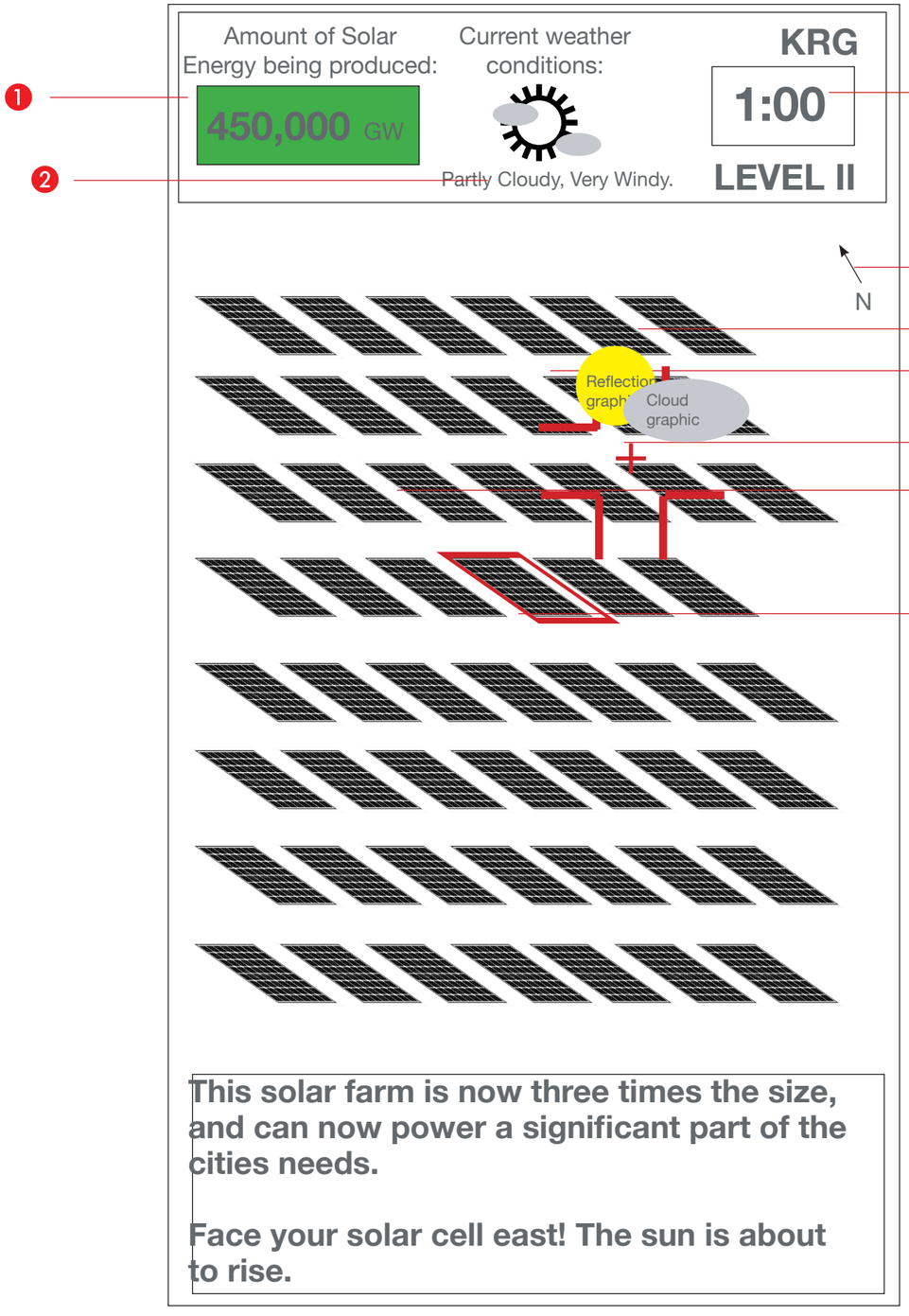



## Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects. (gd)

# FIRE (Solar): Level III



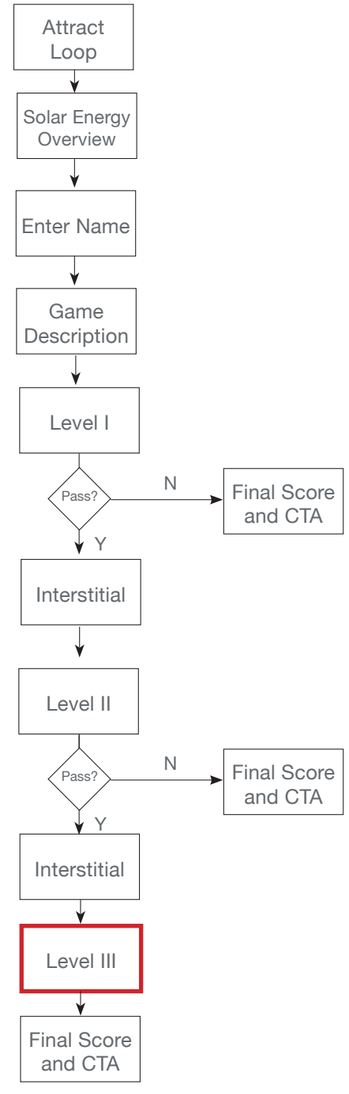

**This solar farm is now three times the size, and can now power a significant part of the cities needs.**

**Face your solar cell east! The sun is about to rise.**

## Screen Elements

1. Amount of energy the player has produced (for that level).
2. Current weather and sky conditions. The weather changes for each level to make the game more challenging. Nighttime also transitions in, and the moon replaces the sun after 1 minute of play. Goal is to teach the relationship between weather and the time of day to the solar energy output. For Level III, the weather is partly cloudy with a lot of wind. The solar panels are hit with a windstorm during this level.
3. Player's name, timer, and Level display.
4. Compass. The compass help the player orient where the sun's path. For Level III, the compass is oriented at an angle for a greater challenge. The user is required to tilt the controller front and back, not just side to side. The solar farm visual can also orient with the compass (so the perspective is different from Level II).
5. Solar Farm. In Level III, a very large solar farm is shown.
6. Sun Reflection Graphic. The animation starts at dawn, just before sunrise. the sun travels from east to west, with clouds periodically blocking and obscuring the reflection.
7. Cloud Graphic. The clouds appear intermittently during the game play.
8. Cross hairs. The closer the sun graphic is to the centerpoint of the cross hairs, the more energy is produced.
9. The Player's solar panel (the one they are specifically controlling) is highlighted. All animated solar panels are in sync with the panel being controlled by the player.
10. Dialog Box. Shows how-to. facts, warnings, consequence incurred, tips. A fact and a tip are shown.

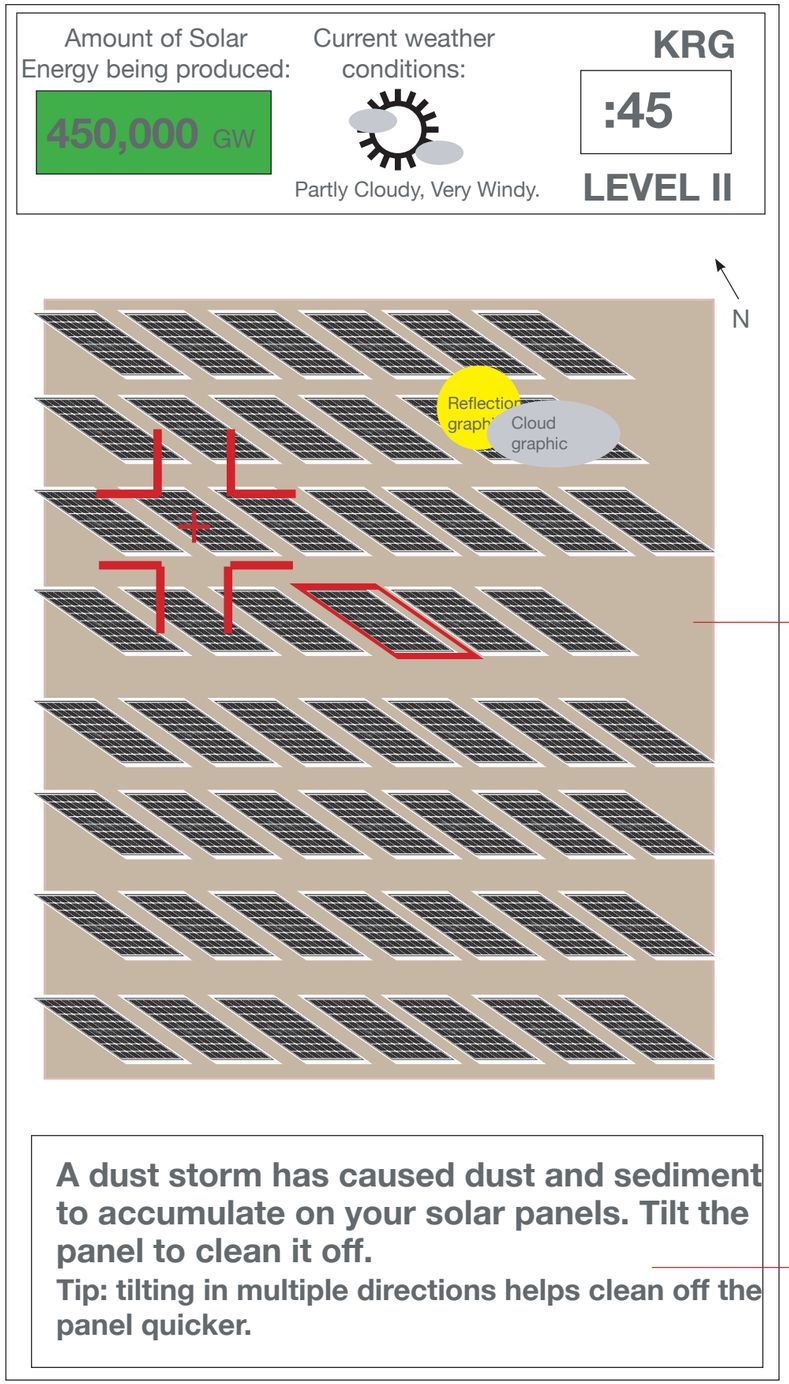
## Where We Are In the Flow




## Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (gd). CG background (gd), animated solar cells (m), animated sun (m), animated storms (dust, snow) (m), animated car (m - flash programmer not scott)

# FIRE (Solar): Level III (Dust Storm)

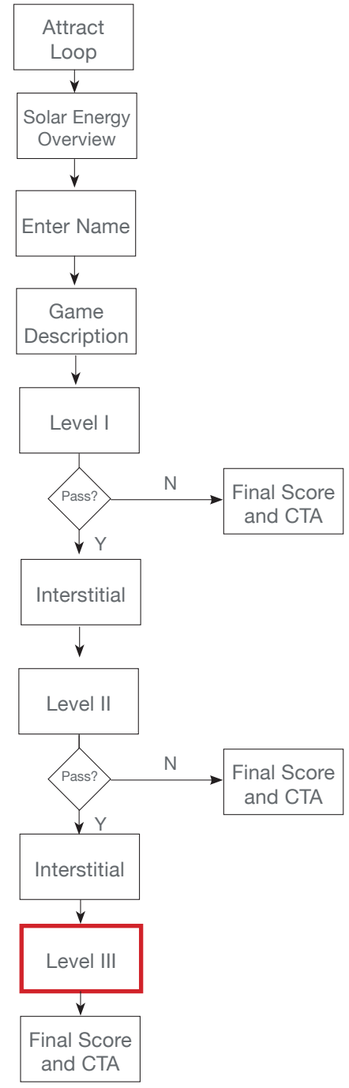



## Screen Elements

1. Player window. At :45 (Fifteen seconds into the game), a dust storm kicks up limiting the capture of solar energy and requiring the player to clean the panels. The player has to clean the panels by tilting the controller side to side. The screen animates as this is being done, and the dust is blown off. The more quickly they tilt, the sooner the dust is removed. Game resumes. Solar farm shown with a layer of dust on the panels shown. Animates off when the player “cleans” their panel.

4. Dialog box. Explains that a dust storm has occurred, and the player must tilt the panel (side to side, and front and back) to clean it off. If they only tilt left, part of the dust comes off, if they tilt left and right, more dust comes off, etc. So tilting in multiple directions helps clean off the panel quicker.

## Where We Are In the Flow




## Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation (gd). CG background (gd), animated solar cells (m), animated sun (m), animated storms (dust, snow) (m), animated car (m - flash programmer not scott)

# FIRE (Solar): High Score and Call to Action

Level I energy production:
**500 GW**
Level II energy production:
**4200 GW**
Level III energy production:
**91,000 GW**

**KRG High scores**

| | |
|---|---|
| LBJ | 95,568 GW |
| TYL | 94,568 GW |
| BCG. | 94,568 GW |
| NMU | 93,568 GW |
| AST | 92,568 GW |

**Your total energy production:**
**95,700 GW**
This is enough energy to power 569 houses for the day.

In the time it took you to play this game, the Sun generated XXXXX GW of energy, but right now we don't have the means to harness it!

What can you do today to help advance solar power?
• Learn how solar energy works. Try experimenting with a solar powered calculator.

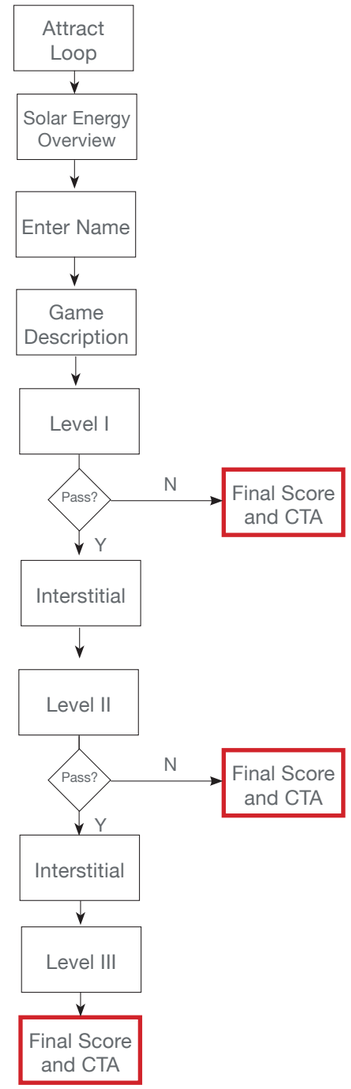
• Encourage your parents to learn more about solar panels to power your home or heat water.

• Learn more about a career as a scientist. We need young minds tackling these problems for a better tomorrow.

### Screen Elements

1. At the end of the game, this screen displays the amount of energy the player produced throughout each level, and ultimately their final output. The top 5 solar energy producers (for that day?) are displayed.
2. This Screen also gives a fact about solar energy. We can relate how much energy the sun produced during the five minutes of game play, and offer actionable items to help advance the use of solar energy.

### Where We Are In the Flow




### Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# WATER

- Description of Experience
- User Flow & Logic
- Wireframes

# WATER: Experience

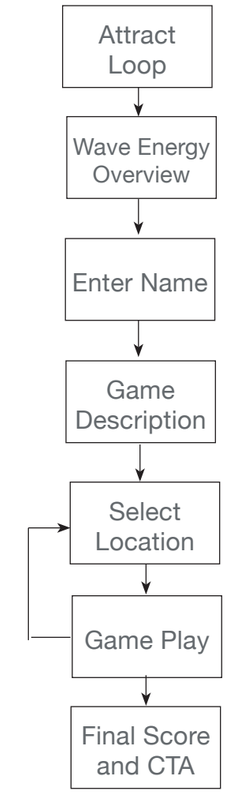
## Description

There are three wave power generation stations. Each station consists of a touch screen, a custom LED power piston, a balance board wave making interface and a hand rail.

The player approaches the station and is greeted with facts about wave and ocean power. Once the screen is touched, the player is welcomed (Wave Energy Overview Screen). The welcome screen gives a brief introduction to wave power; a brief explanation and the advantages and disadvantages, He enters his initials so his score can be recorded and displayed if he is a high scorer. The next screen explains how to play the game and how to be most effective. He is able to demo the equipment and experiment with how to generate the most energy. Next, he chooses the location where his wave buoy generator will be.  The game starts and he is rocking back and forth generating power, and driving the piston. The screen in front of him animates to his motions. After about 30 seconds a storm rolls in, and he has to maintain long, rhythmic waves in order to maximize hie energy production. Depending on his location, a westerly wind may appear which is also a challenge. At any point, the player can change locations to experiment with different weather conditions and challenges specific to the geography.

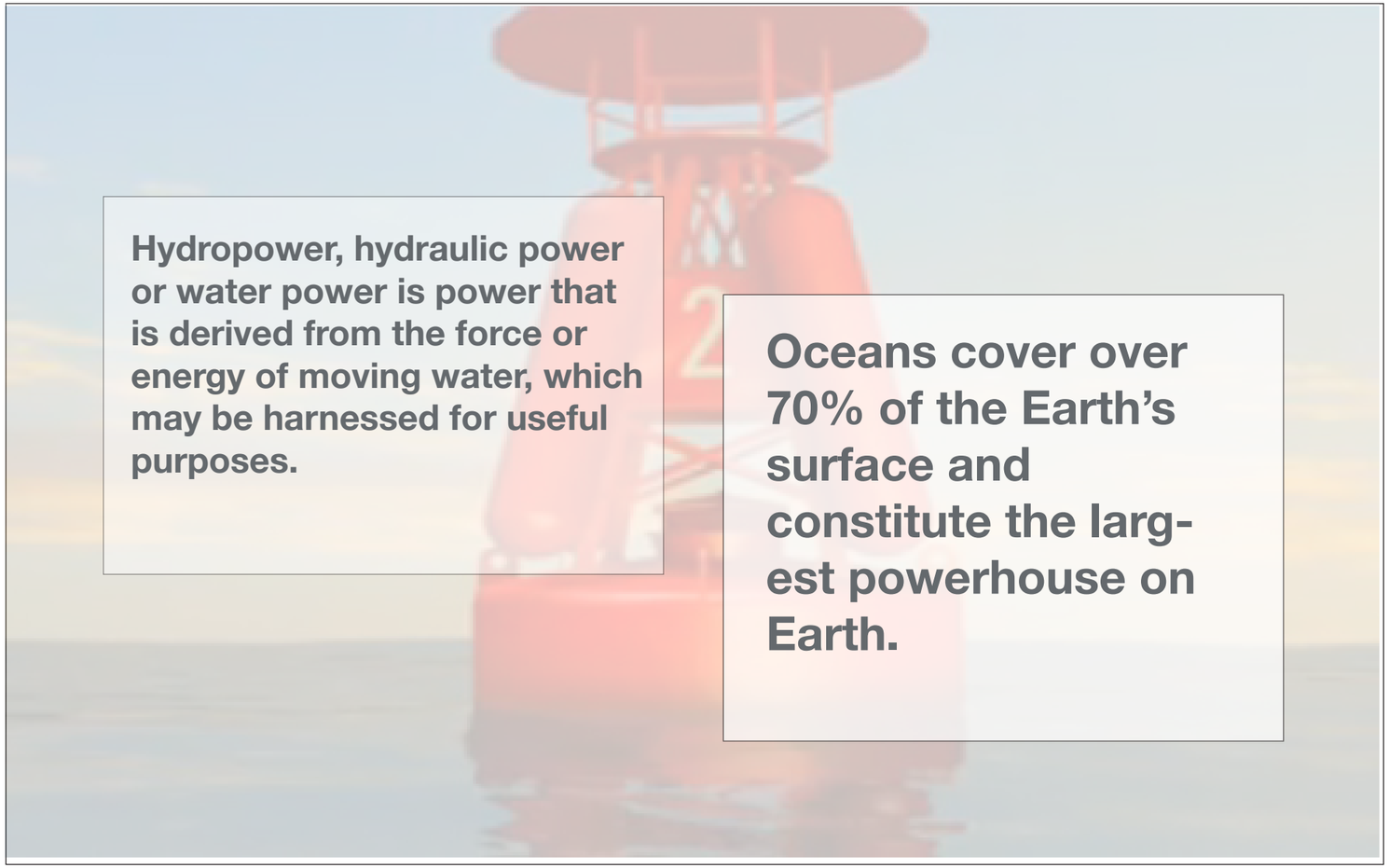
At the end of the game, he sees how much energy he produced and a real life example of what that energy could power (ex. five houses for the day). He is also given a few suggestions about how to advance his new found interest in wave power.

## User Flow




- Game play is 1:30 with storms and wind challenges dependent on the selected location.
- Players can select another location at any time.

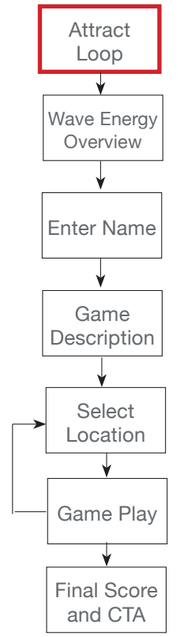
# WATER: Attract Loop




**Screen Elements**

1. Animated “fun facts” about wave power and the ocean as an energy source.

## Where We Are In the Flow




## Roles & Responsibility

Copy - (m)
Attract Loop : 3D Animation - scott (m) , Short Fascinating Facts - heather (m), Gen-eral Graphic Design for elements, placement, font sizes and colors. (gd)

# WATER: Welcome Screen, Wave Power Overview

## Welcome! A few things before we get started -

• Wave energy is produced when electricity generators are placed on the surface of the ocean.

• Wave power is a renewable source of energy, and the energy produced is clean and non polluting.

• Harnessing power from waves presents significant challenges, like the ability to operate safely in difficult weather.

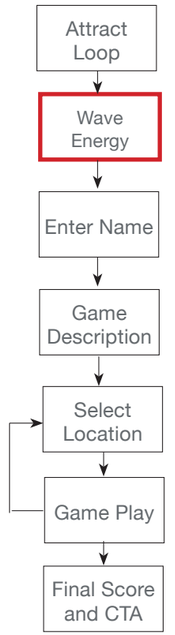
## Got all that? Great, let's go!

Next >

**Screen Elements**

1. Overview of ocean and wave power

### Where We Are In the Flow




### Roles & Responsibility

Copy - (m)
Animation - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects. (gd)

# WATER: Enter Name

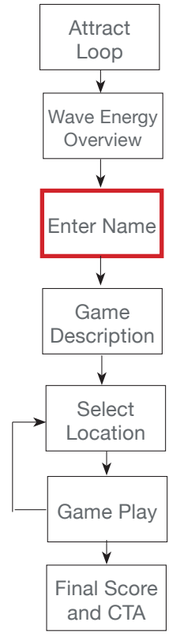
## Enter your three initials using the keypad below:


Next >

**Screen Elements**

1. On screen keypad to three initials.
2. Initials will be used for high scores and to personalize the experience.

## Where We Are In the Flow




## Roles & Responsibility

m = moey
gd = graphic designer

Copy- (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# WATER: Game Description

KRG

## How To Play

The goal is to use the ocean waves to generate energy. You make waves by rocking back and forth on the balance board. The waves drives the pistons in front of you The wave power you create drives an electric generator stored in the buoy.  Step on the board and test your energy output.

Amount of Wave Energy produced:

350 GW

Waves that are long and smooth generate more power than short choppy waves. Why? Because rapid waves cancel each other out and are inefficient.

Be on the look out for changes in weather. During a storm, you'll need to slow things down to be effective.

Next >

**Screen Elements**

1. Game description, tips and caveats.
2. Players can demo the controller and learn how to make effective waves before starting.

### Where We Are In the Flow


### Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states and other small effects. (gd)

# WATER: Select location

## Select the location of your wave buoy generator.


**KRG**

Some areas of the world have better wave power potential than others. A few of the best areas include the western coasts of Scotland, northern Canada, southern Africa, Australia, and the northeastern and northwestern coasts of the United States.

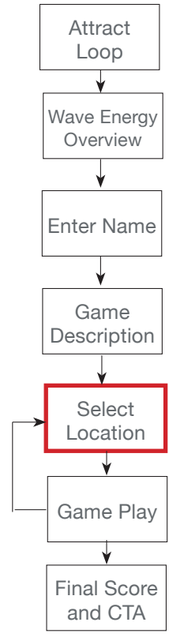
Each place has it's own drawbacks as well, like storms causing choppy waves or remote locations causing distribution issues.

Start!

### Screen Elements

- Map of tthe world with four locations to choose from.
- Text on the right explains a bit about wave generation with advantages and drawbacks.

### Where We Are In the Flow




### Roles & Responsibility

m = moey
gd = graphic designer

Copy - (m)
Graphic Design and Layout of all elements with suggestions for Flash programmer for different states and other small effects. (gd)

# WATER: Gameplay


KRG

2:30

Perth, Australia

Current weather conditions:

Mostly Sunny
70% chance of Thunderstorms

Total Energy Produced:

24,000GW

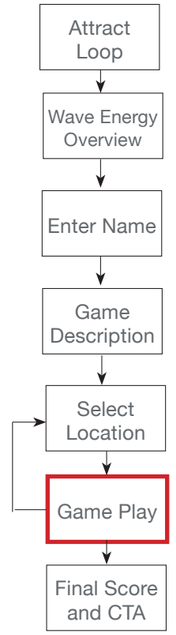
Select a new location

**Theoretical power available from wave energy is 1,000 megawatts per kilometer of coastline. In reality, however, only a fraction of this energy can be extracted, in part because wave intensity is highly variable based on the hour, day and season.**

### Screen Elements

- Player's name, time remaining, location
- Weather conditions and forecast. Dynamic, changes every 30 secs or so. (3 different weather sets). Wind, rain, and storms make the game more challenging.
- Amount of total energy the player has produced.
- A bar graph depicting the current wave generation output, shows how much more power they could be generating compared with what they are actually generating.
- Buoy portal (main window) animates with the player's motion. The slower the player moves, the smoother the waves animate. If the player is consistently slow and rhythmic, they produce the most output. If player is fast and erratic, there is little energy output.
- Dialog box that shows how-to. facts, warnings, and tips. (Fact shown)

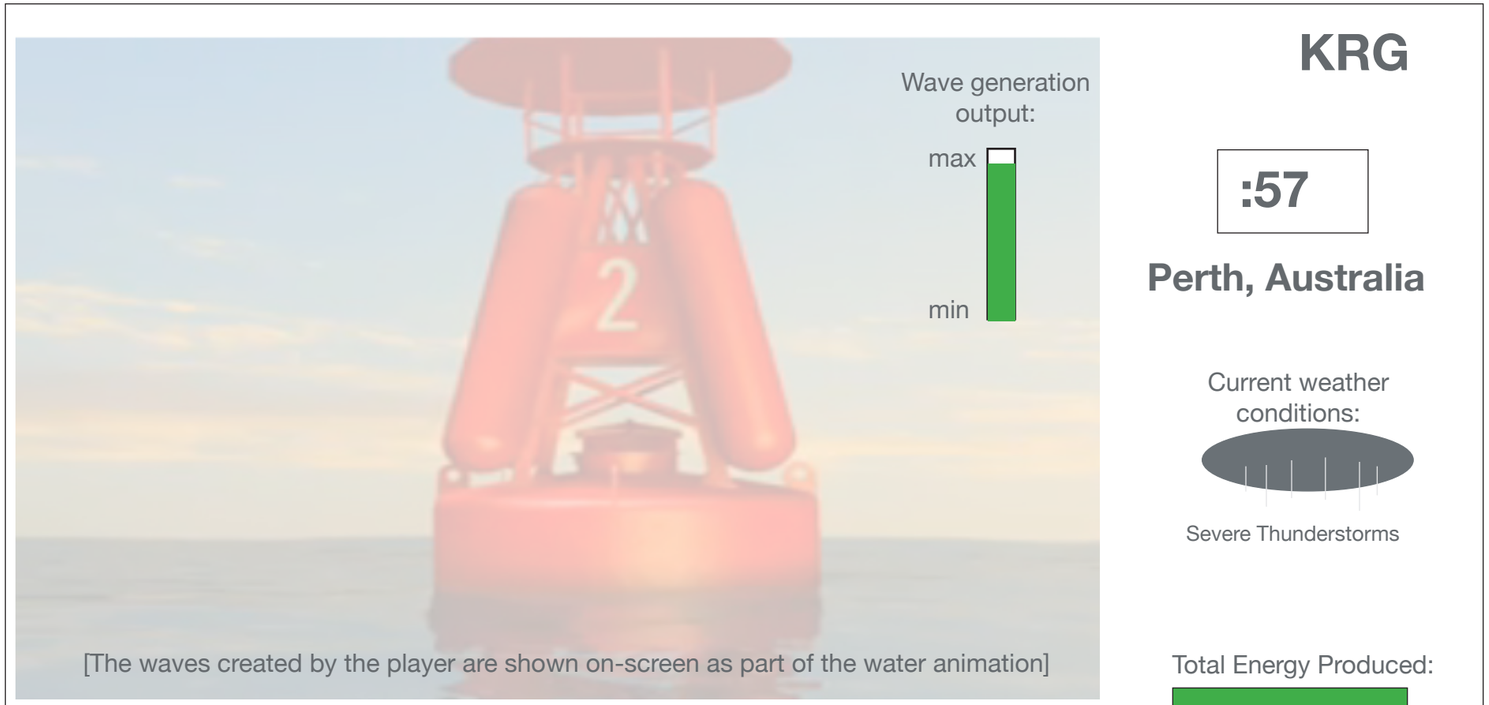
### Where We Are In the Flow




### Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation. Buoy (m), Buoy rocking animation (m - flash programmer, not scott), Waves 3D (m - need to talk with Flash Programmer and Scott regarding approach).

# WATER: Gameplay




**KRG**

**:57**

**Perth, Australia**

Current weather conditions:

Severe Thunderstorms

Total Energy Produced:

**24,000GW**

**Select a new location**

**Large storm waves pose a challenge to wave power development! Choppy water causes irregular waves that are ineffective, and potentially threatens the equipment. Keep it steady!**

**If you match the wave, you generate more power!**

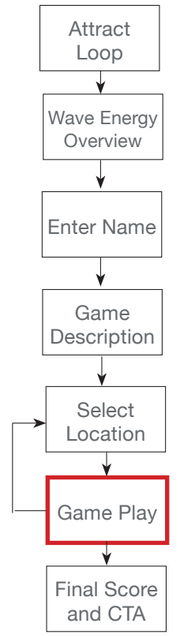
**You are producing maximum wave generation! Great job!**

### Screen Elements

• From 2:30 - 2:00 the weather is calm and sunny. From 1:00 - :30 a storm blows in. - for example. This could be more random as well. During the storm, the players are asked to keep there waves long and even (dialog box). The storm is part of the wave animation even if the player is rhythmic, so the players motions are paired with the storm's behavior in the buoy portal screen. (to discuss).
•If the player matches the wave, they generate more power. this increase in power is shown in the bar graph. the bar graph maxes out if they match the storm waves. The dialog box offers congratulations and encouragement.

• Each location carries with it a different weather experience.

### Where We Are In the Flow




### Roles & Responsibility

Copy - (m)
Game Play : Graphic Design and Layout of all elements with suggestions for Flash programmer for different states of buttons and other small effects and animation. Buoy (m), Buoy rocking animation (m - flash programmer, not scott), Waves 3D (m - need to talk with Flash Programmer and Scott regarding approach).

# WATER: High Score and Call to Action

**KRG**

**Your total energy production: 86,334 GW**
This is enough energy to power five houses for the day.

**High scores**

| | |
|---|---|
| LBJ | 95,568 GW |
| TYL | 94,568 GW |
| BCG. | 94,568 GW |
| NMU | 93,568 GW |
| AST | 92,568 GW |

Wave power is growing in popularity as a potential source for renewable energy. But it's still in an experimental stage.

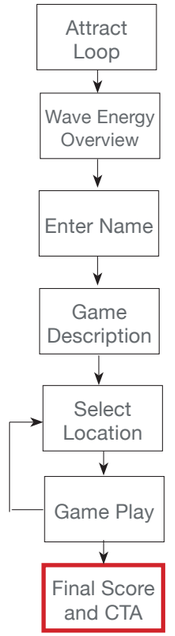
What can you do to learn more?

- Lorem Ipsum
- Dolor sit amet
- Palis nonullan velent veliquisim dolore mod mod

**Screen Elements**

1. At the end of the game, this screen displays your energy production (total GW), and the top 5 high scorers (for that day?)
2. A brief statement about the current state of wave power, and actionable items for the student.
3. if this player is the high scorer of the three players, his/her piston glows red.

**Where We Are In the Flow**




**Roles & Responsibility**

m = moey
gd = graphic designer

Copy - (m)
Graphic Design for elements, placement, font sizes and colors.

# WIND

- Description of Experience
- User Flow & Logic
- Wireframes

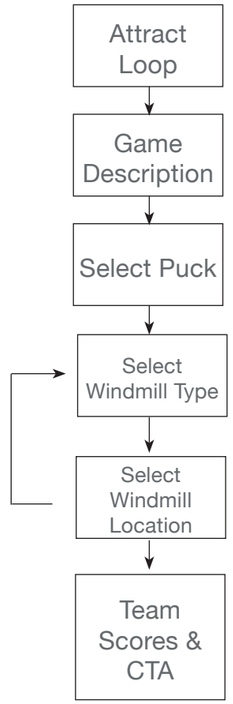
# AIR: Experience

## Description

Three participants will be generating electrical energy from wind energy using an array of different kinds of wind turbines and terrain. Variables of turbine technology and terrain placement impact the overall power output. The experience is designed to emulate that of wind farmers experience in choosing optimal technologies and locations to maximize power generation.

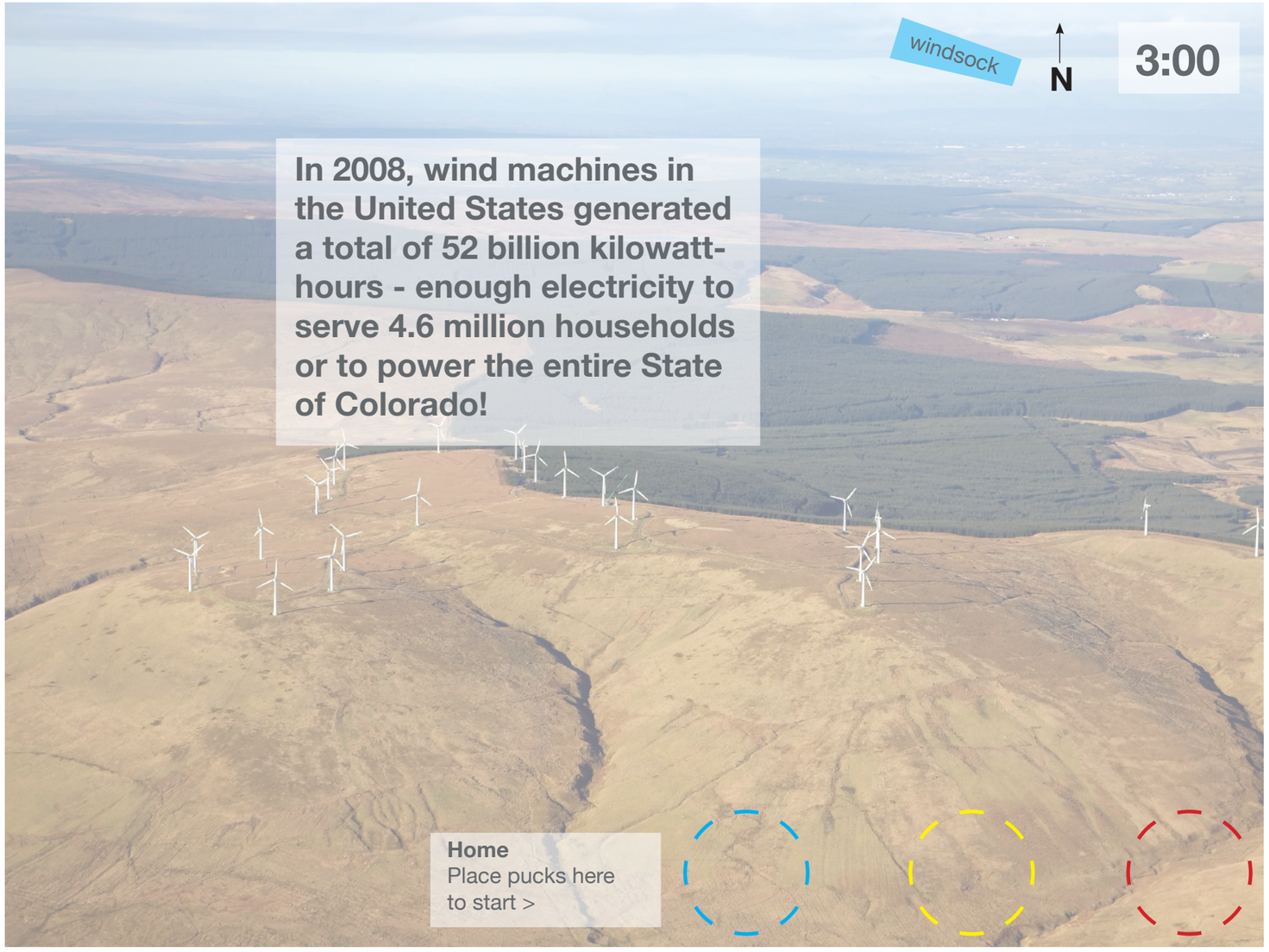
The players ae greeted with an attract loop. Once the player is detected by the console, a brief game overview is displayed that clearly outlines how to play. The player picks up a puck from a table displaying an aerial view of hilly terrain. She is prompted to first place the puck in one of three designated spots for selecting the windmill type. She is given the option to select from three different types of wind turbines, and is offered the advantages and challenges for each. Once she makes her selection, she can place her wind turbine (puck) anywhere on the map to start generating electrical energy. If she places it in the valley, her overall production will be lower than if she placed it on the mountain top. She can figure this out by experimenting with different locations. Once she places the puck down a display box opens showing her location (“valley”), direction facing (SW) which is also designated by an arrow, potential GW/h, her current turbine selection, and total electrical output. At any time during gameplay, she can change the windmill type or select another location in an effort to maximize total electrical production. Additionally, her score, and the scores of the other players are shown on a large screen above the table.

## User Flow

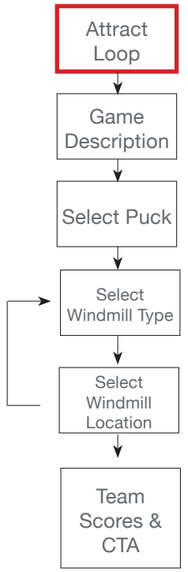



• Variables that improve or hinder score are turbine type, the direction the windmill is facing in relationship to the wind, windmill height, and windmill location (mountain top, slope, valley).

# WIND: Attract Loop




## Where We Are In the Flow




### Table Elements

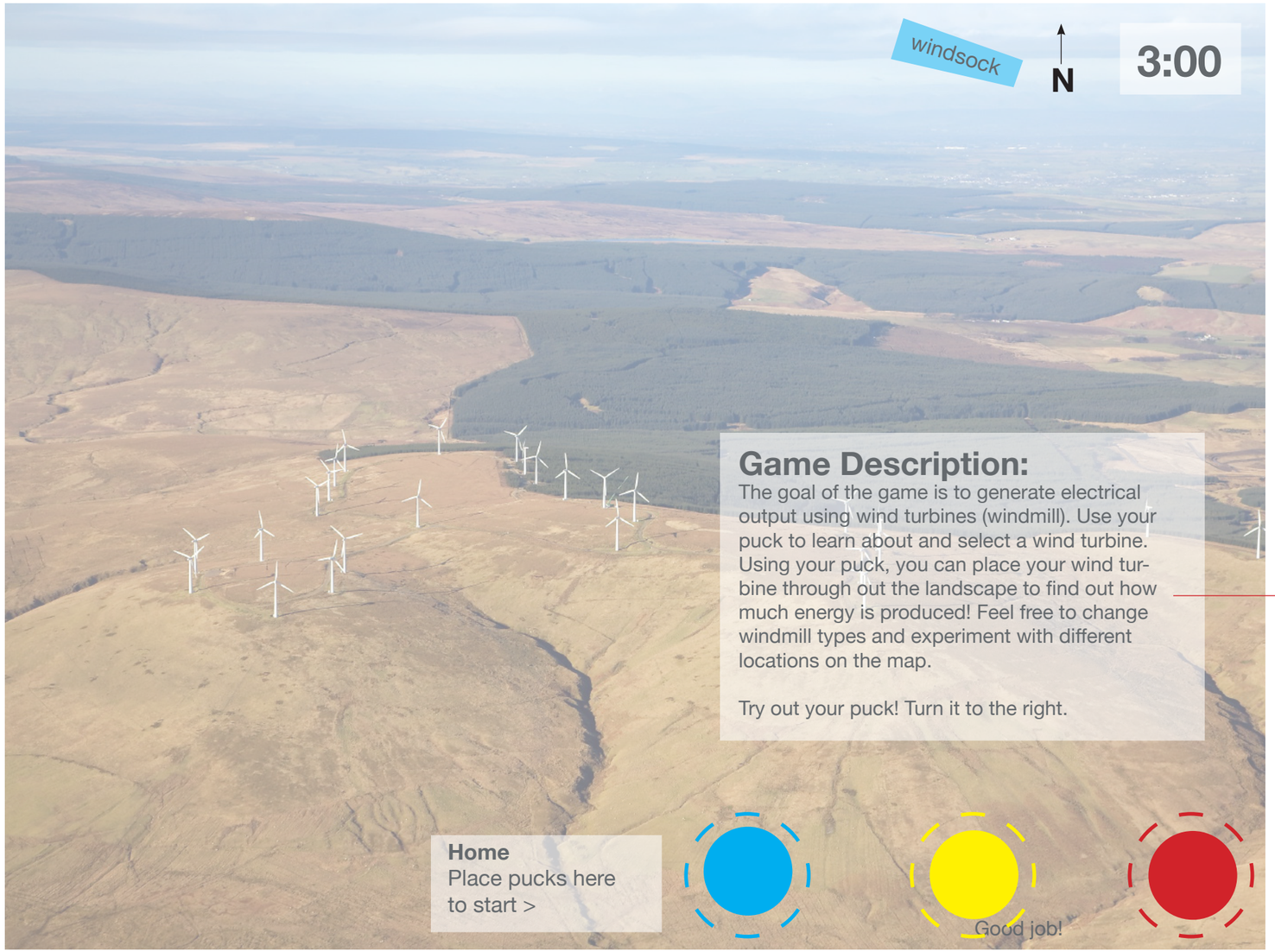
- Attract loop with animated “fun facts”.
- “Home” location for each puck. Here the Here the visitor can put their puck and learn how the technology works, practice rotating and selecting, etc. During gameplay, they can place puck here to change windmill type.

## Roles & Responsibility

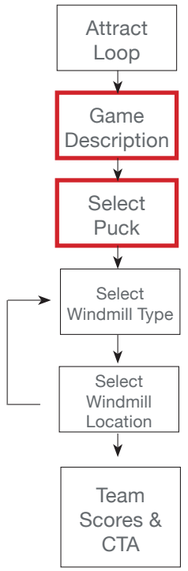
m = moey
gd = graphic designer

Attract Loop : 3D Animation - scott (m) , Short Fascinating Facts - heather (m), General Graphic Design for elements, placement, font sizes and colors. (gd)

# WIND: Game Description




## Where We Are In the Flow




Description bos persistent. It could shrink and stay in the corner near the pucks.

## Roles & Responsibility

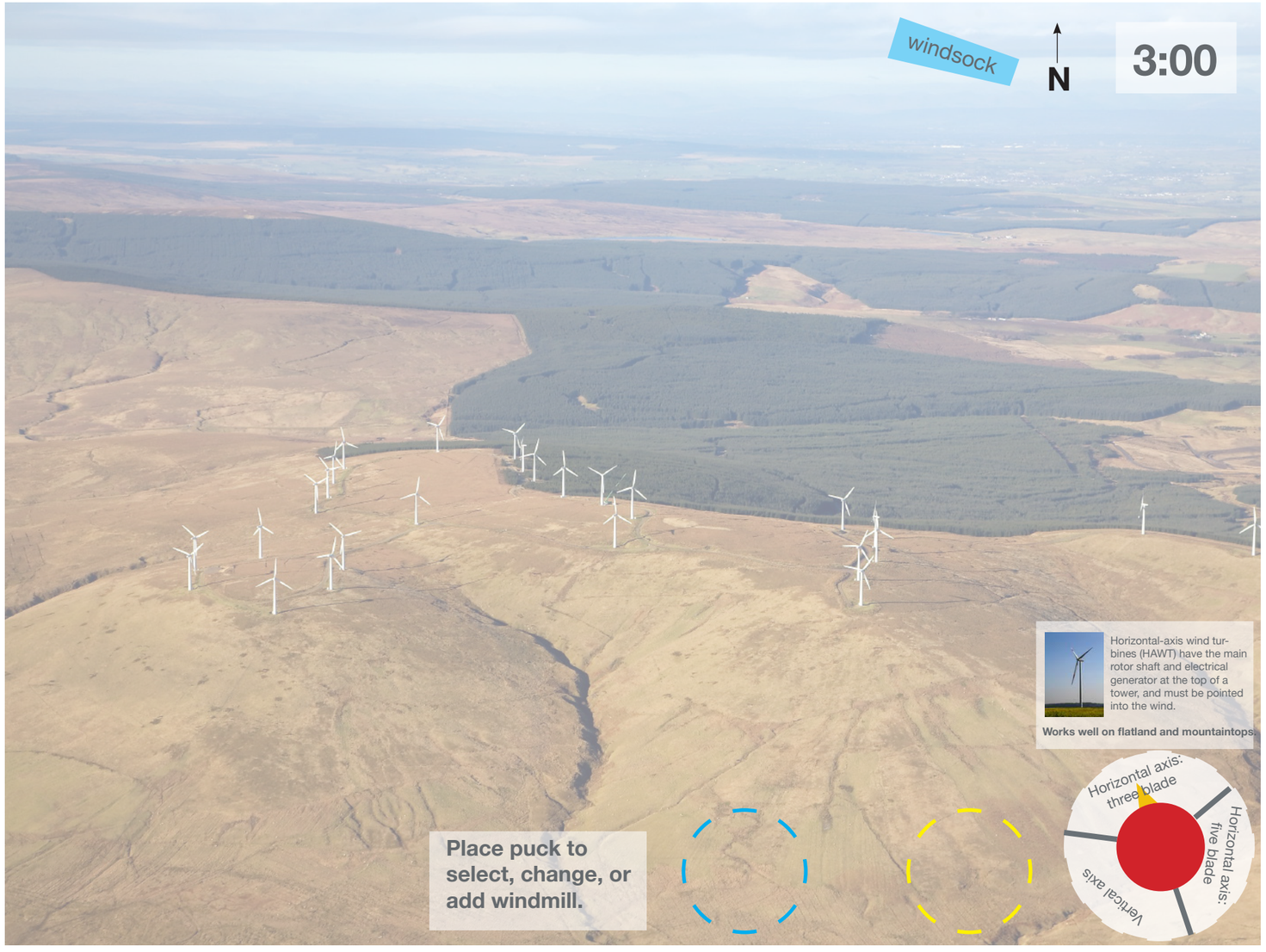
m = moey
gd = graphic designer

Copy- (m)
Graphic Design and Layout of help/instruction area (up all the time) (gd). Layout of selection wheel, text with details on rotational functionality as it relates to the graphics.
CG background (m) actual windmills that get placed -3D and rotating (m)

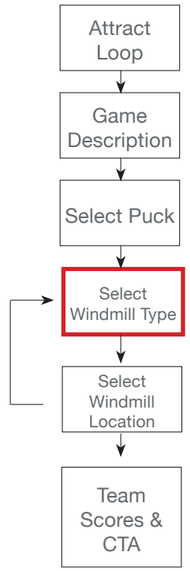
### Table Elements

- Players are prompted place their pucks in a designated location (to orient, familiarize, and get the attention of the player, not for a technical reason), and a brief description of the game is offered. Circles can pulse to encourage them to place their pucks in the circle.
- Since this is a timed game and a competition among the three players, It is suggested that all three players place their pucks in order to see the game description. The Game Description and demo will show for XX seconds and then gameplay commences. This way there is a fair advantage that all players are paying attention.
- Players are encouraged to demo their pucks and will be given a few simple commands (turn right 1/2 turn- good job! Now Turn left 1/4 turn)

# WIND: Select Windmill Type




## Where We Are In the Flow




### Table Elements

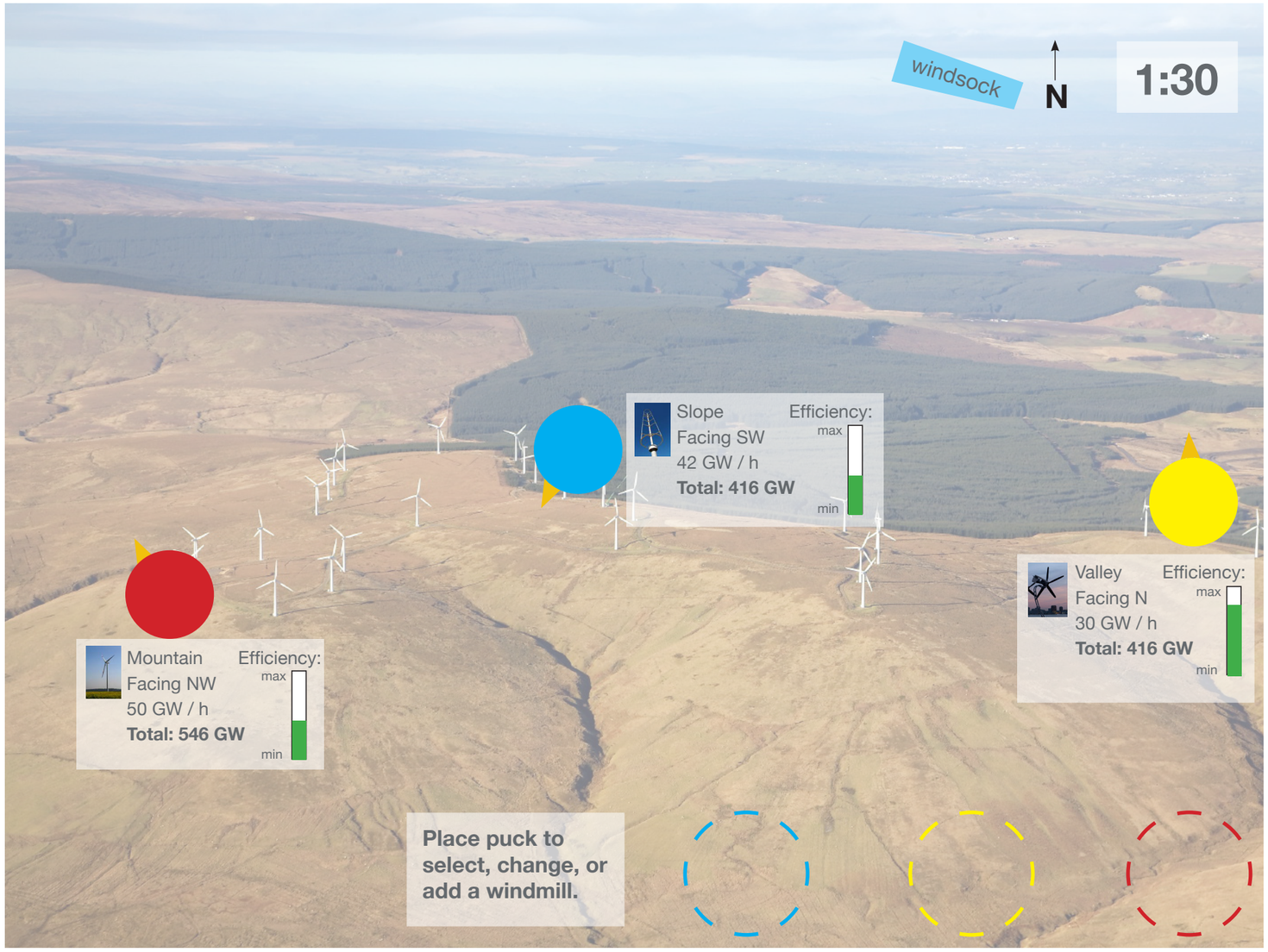
• Players are prompted to select their windmill type by placing it in a delineated location (away from interfering with other players). Once the puck is in place, a menu appears for the player to select from the available turbines. By rotating the puck, the player can select and learn about each different type of turbine- at which terrain they perform best, height variation, potential energy output, etc.
• Game play is set at three minutes, and the time is displayed.

## Roles & Responsibility

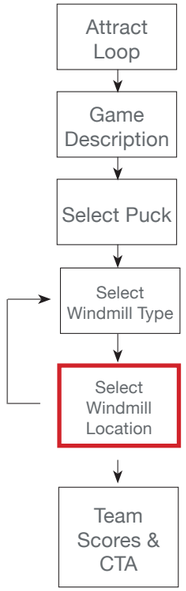
m = moey
gd = graphic designer

Copy- (m)
General Graphic Design for elements, placement, font sizes and colors. (gd)

# WIND: Gameplay (Select Windmill Location)




## Where We Are In the Flow




## Roles & Responsibility

m = moey
gd = graphic designer

Copy- (m)
Graphic Design and Layout of help/instruction area (up all the time) (gd). Layout of selection wheel, text with details on rotational functionality as it relates to the graphics.
CG background (m) actual windmills that get placed -3D and rotating (m)

## Table Elements

- Once the turbine type is selected, players can place their puck on the table to start generating electrical energy. Their location (“Mountain Top”), direction the turbine is facing, turbine selected, and potential GW/h is displayed. Total energy production is also displayed alongside their puck. (Display box)
- A windsock shows which way the wind is blowing.
- An arrow coming off of the “windmill” shows the direction the windmill is facing (shown as )
- Players can experiment with and change windmill types at anytime during gameplay.
- The player’s electrical output is also displayed on a large screen within the station
- Variables that improve or hinder score are turbine type, the direction the windmill is facing in relationship to the wind The wind hitting the windmill head on is most advantageous), windmill height (the higher the windmill, the better the output), and windmill location (mountain top, slope, valley). Collision detection included in gameplay.

# WIND: Team Score and CTA

This is enough energy to power five houses for the day.

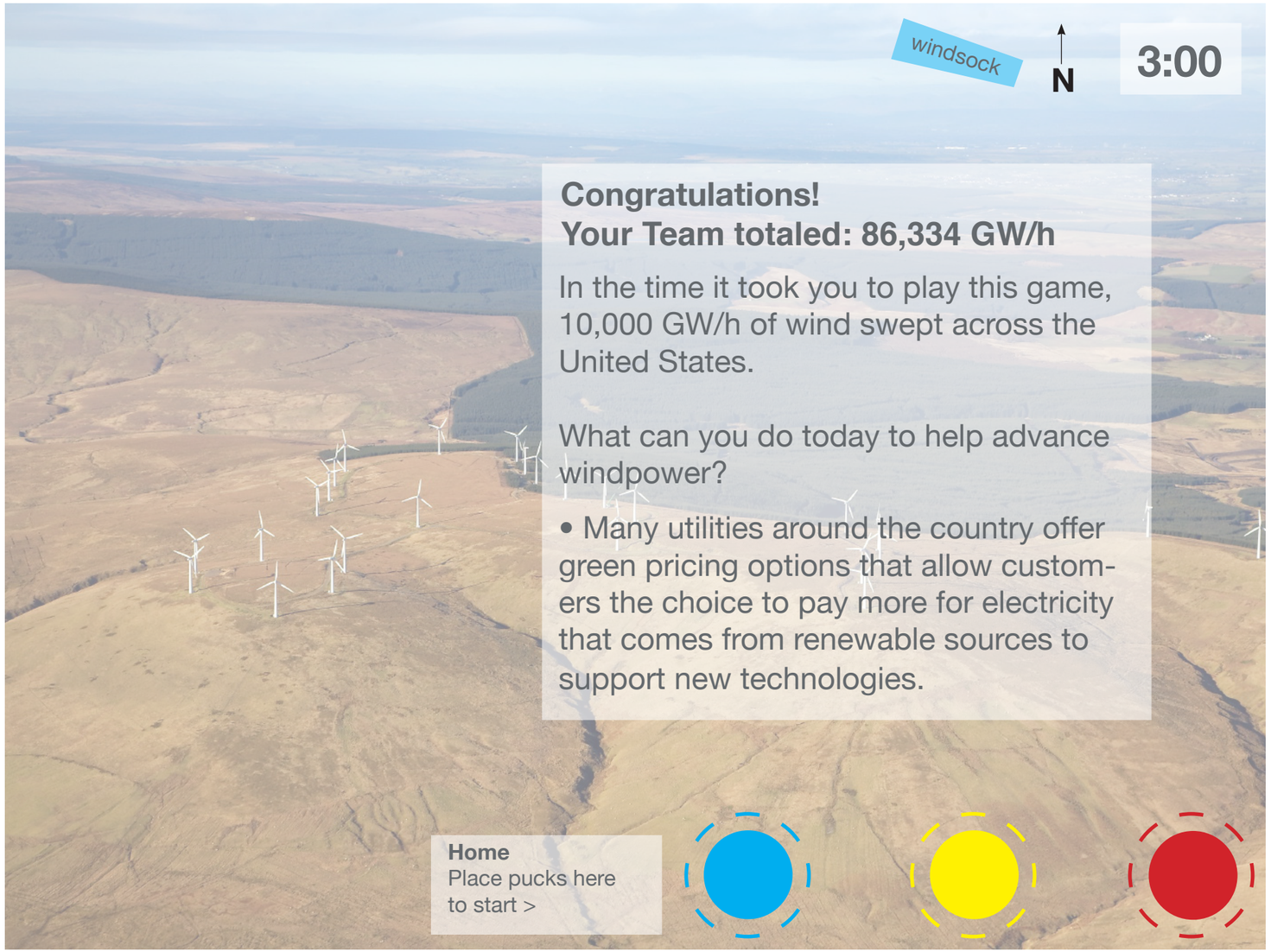
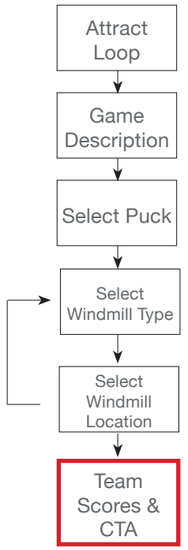



**Table Elements**

- After the game ends, a congratulations screen appears with team score, players scores, and Team scores.
- A call to Action also appears giving suggestions on how to learn more about wind energy once they leave the experience.

**Where We Are In the Flow**




**Roles & Responsibility**

m = moey
gd = graphic designer

Copy - (m)
Graphic Design for elements, placement, font sizes and colors.

# Global

## Global: Station Display

# Energyville Power

### Team A - Wind

| | |
|---|---|
| Jen S. | 193,030 Gigawatts |
| Liz D. | 114,002 Gigawatts |
| Jeff G. | 43, 013 Gigawatts |

**Total: 372,005 Gigawatts**

**Your team produced 23% of the energy needed for Energyville**

**Team B**
**Solar**
**Total: 567,000 GW**
**15% of Energyville**

**Team C**
**Water**
**Total: 367,001 GW**
**15% of Energyville**

**Team D**
**Earth**
**Total: 567,000 GW**
**15% of Energyville**

**Screen Elements**

- A screen showing the standings of all the teams (Team A, Team B, etc.), and standings of the players within a specific team (Jen S. or Player 1).
- The screens show which team is at which station (Team B - Solar)
- There will be four of these screens, one at each of the four station (Earth, Wind, Solar, Water)
- This screen will display real time feedback.
- Percent of energy produced for Energyville displayed to encourage playful competition among teams.

**Roles & Responsibility**

m = moey
gd = graphic designer

Copy - (m)
Graphic Design for elements, placement, font sizes and colors.