

# Programme 6

## GREEN POWER



### Unit 6: Green Energy

#### Teaching Point

Our fuel future in Ireland is in crisis and is in need of major change.

Outcomes: Having completed this unit students should be able to

- ✍ Outline the main alternative and renewable energy source available.
- ✍ Evaluate the environmental sustainability of current practice.
- ✍ Suggest and analyse the different options for change.

### Aonad 6: Fuinneamh Glas

#### Pointe Teagaisc

Tá géarchéim in Éirinn ó taobh thodhchaí an bhreosla de agus tá athrú mór de dhíth.

Torthaí: Tar éis an aonaid seo a chríochnú ba chóir go mbeadh daltaí ábalta:

- ✍ Tuairisc a thabhairt ar na príomhfhoinsí fuinnimh mhalartaigh agus inathnuaite atá ar fáil.
- ✍ Measúnú a dhéanamh ar inmhharthanacht timpeallachta na gcleachtas reatha.
- ✍ Roghanna difriúla d'athrú a mholadh agus anailís a dhéanamh orthu.

## Activities

### 1. Brainstorming

Based on the video presentation and the worksheet questions take the class through a discussion on the main arguments of the video. Question the class on the issues surrounding each of the topics in relation to green energy. These questions and answers should support and assess their understanding of the issues. The discussion should also draw together some of the issues for the Irish environment which are highlighted in the earlier programmes.

The questions should guide the students through;

- ✍ Our Fuel Future – the current situation.
- ✍ Renewable energy sources.
- ✍ Hydro Electric Power.
- ✍ Solar Energy.
- ✍ Biomass.
- ✍ Wind power.
- ✍ Waste to Energy.
- ✍ Hydrogen Technology.
- ✍ Our Environmental Future.

### 2. Internet Search

Students are asked to do an internet search for information on the new and alternative renewable (green) energy sources outlined by Duncan. The students should search for fact and opinion on each of the issues and look for countries that are actively developing these technologies. Students could use school facilities or home computers. Students should be advised to be discerning in relation to the sources of the opinions and materials that are presented in relation to the issues. The results of the search should then be used as focus materials for the group work and debate.

### 3. Group work

Divide the class into groups and ask the groups to consider three different issues.

- ✍ look at the current situation in relation to energy usage in Ireland.
- ✍ select one of the green alternatives suggested by Duncan and discuss the issues surrounding the introduction and usage of this source. Each group should discuss a different alternative energy source as outlined in activity 1.
- ✍ look back on the main issues raised in the series in relation to the threats and hazards to the Irish environment. Try to make a connection between the group's chosen alternative energy source and how it might impact upon these national issues.

After adequate preparation time each group must present their findings in the form of a debate. Each group must debate the motion **"Ireland's Energy Future is in crisis. What is our best alternative?"** Each group should be given up to five minutes to present.

#### 4. Map work

Students are asked to focus on the choice of locations for a wind farm and a waste to energy plant. Select an OS Map extract, which contains both a range of settlement types and rural areas. Students are then asked to focus on the following.

**The site of a proposed incinerator:** Students should address the following issue. As a Geography Class you are asked to select three possible sites for a waste to energy plant in the map area. Students must select the sites using grid references and then justify why they chose each of the particular sites. They must also look at possible reasons why local people might object to the sites. The emphasis is on the site and not the environmental impact of the activity on a national or global scale.

**The site of a proposed wind farm:** Now repeat the same activity and consider the location of a wind farm. Ideally students should focus on the OS Map of their own community. Students should individually write their responses to the map work activities.

#### 5. Fieldwork Investigation

##### **Energy use and Awareness in the Local Community.**

Students are asked to conduct an audit of their local community to examine the pattern of their energy usage and their knowledge of the possible green energy alternatives.

Remember the steps!

**Step 1:** Identify key aims or formulate a hypothesis

**Step 2:** Identify and get the background material required.

**Step 3:** Identify the main methods of gathering your information.

**Step 4:** Identify the main results and draw a conclusion.

**Step 5:** Identify some achievable actions which may help the situation.

## **Energy use and Awareness in the Local Community.**

### **Step 1: Identify key aims or formulate a hypothesis.**

#### **Aims:**

1. To survey current patterns in energy use among residents of the community.
2. To examine awareness of the environmental implications of these patterns.
3. To examine awareness of the possible green alternative energy sources available.

### **Step 2: Background Information.**

1. View the programme "Green Energy"
2. Use the findings of the internet search and group work in Activities 2 and 3.

### **Step 3: Gathering.**

1. Construct your questionnaire. (See sample questionnaire attached)
2. Each class member should interview at least 10 different households.

### **Step 4: Results and conclusions.**

1. Total the number of returned questionnaires and divide them into four groups.
2. Assign a number of students to analyse each group of questionnaires. They should work out the basic statistics for each of the answers. The results which show significant variations should then be related to the variables of age, gender, marital status, car ownership and distance from the site.
3. In drawing conclusions try to answer the aims.

### **Step 5: Action**

1. Make a display of your results and exhibit them in school or in a public building.
2. Write a report for the local newspaper highlighting your findings and recommendations.
3. Invite a local representative to your class to discuss the issue.



## Programme 6

# GREEN POWER

**Look at the videotape once. Look, Listen, Concentrate and Enjoy! 26 minutes approximately.**

**How closely did you look?**

Now take a second look. Stop, Start and Rewind the tape to identify clearly what you think Duncan is now telling us about Renewable Energy and Green Energy in Ireland.

Now complete the following worksheet questions.

### Our Fuel Future!

1. What are Ireland's most used fossil fuels?

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2. Even with the problems of fossil fuels running out and the pollution that they cause, there is a more immediate threat to Ireland's environment. What is it?

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3. What is the new dawn that we are facing?

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### Renewable Energy!

4. What are renewable energy resources?

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5. How did Ireland fare in the conditions and energy reductions agreed at the Kyoto summit?

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Clár 6

# Cumhacht Ghlas

**Féach uair amháin ar an bhfistéip. Féach, Éist, Dírigh d'intinn air agus Bain Sult As! Timpeall 26 nóiméad. Cé chomh grinn is a d'fhéach tú?**

Anois féach in athuair. Stop, Tosaigh agus Cuir Siar an téip chun a aithint go soiléir cad a cheapann tusa atá á rá ag Duncan linn faoi Fhuinneamh Inathnuaite agus faoi Fhuinneamh Glas in Éirinn. Anois freagair ceisteanna na bileoige oibre seo a leanas:

**Todhchaí an Bhreosla!**

1. Cad iad na breoslaí iontaiseacha is mó a úsáidtear in Éirinn?

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2. Fiú leis na fadhbanna atá ann maidir le breoslaí iontaiseacha a ídiú ar fad agus an truailliú a bhaineann leo, tá bagairt níos mó fós ann do thimpeallacht na hÉireann. Cad é?

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3. Cad é an tús nua atá romhainn?

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**Fuinneamh Inathnuaite!**

4. Cad iad acmhainní fuinnimh inathnuaite?

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5. Conas mar a d'éirigh le hÉirinn chomh fada agus a bhaineann leis na coinníollacha agus na laghduithe fuinnimh a comhaontaíodh ag cruinniú mullaigh Kyoto?

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6. What percentage of our energy comes from renewable energy sources at present?

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**Hydro Electric Power!**

7. What was Ireland’s first sustainable energy production?

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8. Why can we not develop Hydro Electric Power (HEP) any further?

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9. What percentage of our energy comes from HEP today?

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**Solar Energy!**

10. What are the solar energy sources available in Ireland at present? What are their limitations?

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11. How can we use solar thermal technology?

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6. Cén céatadán dár bhfuinneamh a thagann ó fhoinsí fuinnimh inathnuaite faoi láthair?

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**Cumhacht Hidrileictreach**

7. Cad é an chéad táirgíocht fuinnimh inmharthana a bhí in Éirinn?

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8. Cén fáth nach bhfuilimid ábalta Cumhacht Hidrileictreach (HEP) a fhorbairt tuilleadh?

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9. Cén céatadán dár bhfuinneamh a thagann ó Chumhacht Hidrileictreach sa lá atá inniu ann?

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**Fuinneamh Gréine**

10. Cad iad na foinsí fuinnimh gréine atá ar fáil in Éirinn faoi láthair? Cé na srianta atá ag baint leo?

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11. Conas is féidir linn teicneolaíocht theirmeach gréine a úsáid?

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**Biomass!**

12. How can biomass be used to produce energy?

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13. What are the different forms of biomass which can be used?

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**Wind Power!**

14. What is the most dominant form of renewable energy available in Ireland?

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15. Why are we so suited to this form of renewable energy?

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16. What are the main objections to wind farms?

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**Waste to Energy!**

17. What is waste to energy?

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**Bithmhais!**

12. Conas is féidir bithmhais a úsáid chun fuinneamh a tháirgeadh?

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13. Cé na cineálacha éagsúla bithmhaise is féidir a úsáid?

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**Cumhacht Gaoithe!**

14. Cén cineál fuinnimh inathnuaite is mó atá le fáil in Éirinn?

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15. Cén fáth go bhfuil an tír seo in oiriúint chomh mór sin don chineál sin fuinnimh inathnuaite?

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16. Cad iad na príomhagóidí in aghaidh feirmeacha gaoithe?

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**Ó Dhramhaíl go Fuinneamh!**

17. Cad is dramhaíl go fuinneamh ann?

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18. What amount of fossil fuels would an incinerator replace and how many houses could it heat?

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19. Why are emissions from incinerators a worry?

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**Hydrogen Technology!**

20. What is the clean sustainable transport fuel called?

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21. How could hydrogen powered vehicles change the impact of modern traffic in cities?

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22. What is green electricity and how can we switch over to it?

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**Our Environmental Future!**

23. Why do we need to change our energy use?

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18. Cén líon breoslaí iontaiseacha a chaithfí a chur in áit loiscneora agus cé mhéad teach a théadh sé?

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19. Cén fáth gur cúis inní iad astuithe ó loiscneoirí?

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#### **Teicneolaíocht Hidrigine!**

20. Cad a thugtar ar bhreosla iompair inmharthanach glan?

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21. Conas a bhfhéadfadh feithiclí faoi chumhacht hidrigine tionchar an tráchta nua-aimseartha a athrú i gcathracha?

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22. Cad is leictreachas glas ann agus conas is féidir linn an t-athrú a dhéanamh chuige?

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#### **Todhchaí na Timpeallachta!**

23. Cén fáth nach mór dúinn an méid fuinnimh a bhíonn in úsáid againn a athrú?

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24. What is the only sustainable way forward?

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25. What are the main areas of focus for Ireland’s environment over the next decade?

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24. Cad é an t-aon bhealach inmharthanach chun cinn?

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25. Cad iad na príomhréimsí nach mór díriú orthu i dtimpeallacht na hÉireann sna deich mbliana atá ag teacht?

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**Our Transition Year class is doing a project on Energy use and awareness in the community. I am interviewing 10 households in this area. I wonder would you take 5 minutes to answer these questions.**

1. What is the main energy source(s) used to heat your house?  
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2. What energy source lights your home?  
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3. Do you own a car? If yes, what fuel does it use?  
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4. Could you roughly calculate how much you spend in a week on  
◆ Electricity \_\_\_\_\_ ◆ Petrol or Diesel \_\_\_\_\_ ◆ Home Heating \_\_\_\_\_
5. Could you name any of the environmental problems associated with using these types of energy?  
\_\_\_\_\_  
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6. Can you name any of the alternative green energy sources, which could be used to replace these?  
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7. Would you agree with a change to producing electricity using wind power? If yes, do you see any difficulties associated with this change?  
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8. Would you agree with producing electricity from burning domestic waste in a Municipal Incinerator? What are the issues which would concern you?  
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9. Are you aware of any alternative energy sources, which could be used to heat your home, which are environmentally friendly? If yes please explain briefly what you know.  
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10. Are you aware of any alternative energy sources which could be used to power your car, which are environmentally friendly? If yes please explain briefly what you know.  
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**Can I finish by asking you a few questions about yourself?**

11. Into what age bracket do you fall?  
Under 20 ☐ 20 to 34 ☐ 35 to 49 ☐ 50 to 64 ☐ over 64 ☐
12. Gender? Male ☐ Female ☐
13. What is your marital status? Married ☐ Single ☐ Other ☐
14. What is your highest level of education? \_\_\_\_\_

*Thank you for your help.*



# SAMPLE QUESTIONNAIRE

