

Sustainable Energy: an unbiased Review of Options

Presented by Brian Sowerby



Learn how to teach your students good and interesting lessons about sustainable energy and climate change from a balanced and unbiased perspective.

Format: Online

Audience: Secondary Teachers of Science and Geography

Description

Hi there. My name is Brian Sowerby, a former CSIRO Chief Research Scientist. I have created this course to provide you with teaching tools that can be used to engage students in up-to-date learning on how to provide energy in the future while minimising environmental damage. The course provides a balanced and unbiased overview of the various options. The focus of the course is on providing information on the various technologies and on conducting a realistic evaluation of these technologies. The course has strong links to various parts of the high school syllabus, particularly in Science, Earth and Environmental Science, Physics and Geography. The course firstly looks at motivations for changing our energy production and use followed by an assessment of our energy demands now and in the future. To meet these demands renewable technologies are evaluated as well as coal or gas with carbon sequestration, nuclear and geothermal. A wide range of teaching resources is provided.

Additional notes about this format

Teaching Standards

2.1.2 Proficient Level - Content and teaching strategies of the teaching area

2.3.2 Proficient Level - Curriculum, assessment and reporting

6.2.2 Proficient Level - Engage in professional learning and improve practice

Are you in NSW? If so, this is relevant for you

Completing this course will contribute 6 hours of NESA Registered PD addressing 2.1.2, 2.3.2 & 6.2.2 from the Australian Professional Standards for Teachers towards maintaining Proficient Teacher Accreditation in NSW.



Occurrences

Start Date	Location	Price
30/06/2019	Online	\$269 + GST

Sessions

Motivations for Change

1 hour

In the first session you will learn about motivations for changing our energy production and use. These motivations include finite resources, energy security and climate change. World energy reserves will be reviewed and climate data and climate models will be discussed.

Energy Consumption

40 minutes

Using the methodology developed by Prof David MacKay, our energy consumption will be expressed in simple units that are easy to understand and compare. Our energy consumption includes: transport (cars, planes, freight, etc); heating and cooling; lighting; information systems and other gadgets; food and manufacturing.

Renewable Energy Technologies

1 hour and 30 minutes

In this session renewable technologies will be discussed and their potential realistically evaluated. The technologies to be reviewed are wind, solar photovoltaic, solar thermal, energy storage, biomass combustion and fuel, hydroelectric, geothermal, wave and tide.

Coal, Gas and Nuclear

1 hour

In this session we will attempt to determine whether coal or gas with carbon capture and storage is a viable option to meet our future energy demands. In addition we will evaluate nuclear as an alternative base-load technology for Australia.

Future Energy Plans

30 minutes

In this session we will consider a range of possible energy plans for the future (up to 2050) and evaluate the costs of implementing these plans.

Resources for Teachers

1 hour and 20 minutes

In the final session we will review some resources that are available for use in the classroom. You will be asked to create a lesson plan on sustainable energy and share it with the other participants.

About the team



Brian Sowerby

Creator

Brian Sowerby recently retired as Chief Research Scientist and Program Manager (Instrumentation and Control) with CSIRO Minerals. He obtained a BSc (Hons 1) from the University of NSW and a PhD in physics from the Australian National University. Following two years post-doctoral work in Canada, Brian has carried out research and development in Australia on the application of on-line analysis techniques in the mineral, energy and security industries. His work led to the commercialisation of a number of on-line analysis instruments and he has received many awards for this work including the prestigious Australia Prize in 1992.



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Limited spots are available. Please enrol online or fax your enrolment to 1300 667 691 to secure your spot.

Please note, by submitting this enrolment form you are confirming that you have been given financial approval by your employer to attend this course. Cancellation advice should be given in writing 7 days before the commencement of this course.

Product: Sustainable Energy: an unbiased Review of Options

Occurrence Date:

Your Name:

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