

**BACCALAURÉATS GÉNÉRAL ET TECHNOLOGIQUE**  
**SESSION 2013**

ÉPREUVE SPÉCIFIQUE MENTION « SECTION EUROPÉENNE OU DE LANGUE ORIENTALE »  
Académies de Paris-Créteil-Versailles

**Binôme : Anglais / SVT**

Sujet n°35

THEME 2B: GEOTHERMAL ENERGY  
SERIES: S, ES, L

Geothermal prospects in the UK are represented by low enthalpy resources in deep sedimentary basins and “Hot Dry Rock” (HDR) in radiothermal granites, and possibly in deep basement rocks where they are overlain by thick low conductivity sediments. The low **enthalpy**<sup>1</sup> resources are in **Permo- Triassic**<sup>2</sup> sandstones at temperatures of more than 40°C. Four deep exploration wells have  
5 been drilled to investigate the potential of these sediments aquifers. The main HDR resource potential is associated with major granite batholiths in southwest and northern England where temperatures are predicted to be 200°C at about 5.4 and 6 km respectively.

The Hot Dry Rock Accessible Resource Base at temperatures of more than 100°C and depths of  
10 less than 7 km is equivalent to  $130 \times 10^4$  million tons of coal. The low **enthalpy**<sup>3</sup> Geothermal Resource of the **Permo- Triassic**<sup>4</sup> sandstones at temperatures of more than 40°C is equivalent to about 8000 million tons of coal. If only a small fraction of these resources could be developed, it would be significant in terms of the UK's energy balance.

R. A DOWNING and D. A. GRAY, *Journal of the Geological Society*, May 1986

**Sum up this article and explain the main ideas using your scientific knowledge.**

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<sup>1</sup>Enthalpy. is a measure of the total energy of a thermodynamic system

<sup>2</sup>Permo-Triassic: in geologic time, 252.28 Ma years ago.