Energy: Markets, Models & Strategies

FACULTY BIO

Derek Bunn has been associated with the energy sector for many years, through research, teaching, publishing and consulting. He has been chief editor of Energy Economics and has founded the new Journal of Energy Markets. He has advised many international energy companies, including most of the main European power companies at various times, as well as official enquiries into energy markets by various government agencies worldwide.

COURSE SUMMARY

This course provides an introduction to an industrial sector of worldwide importance, and one in which there are now many business challenges through market restructuring and the development of low carbon technologies. Topics Covered:

- The energy commodities: oil, gas and electricity pricing processes
- Geopolitics and global markets for oil and gas
- Power system economics, regulation and market liberalisations
- Infrastructure investment in the energy sector
- Understanding value creation and the energy supply chains
- Carbon finance, renewable finance and low carbon technologies

This course is aimed at:

Students who would like a general introduction as well as participants from within the sector who would like to develop a broader understanding.

COURSE FORMAT

This course is offered as: Block week and weekly versions

LEARNING OUTCOMES

On successful completion of this course, you will be able to:

- Have an informed view of the global resources in oil, gas and renewables
- Understand the price formation processes for oil, gas, electricity and carbon
- Value old and new generation assets in the power sector
- Understand the regulated transmission and distribution network businesses
- Become more aware of the policies for creating a low carbon utility business
- Appreciate the costs and risks of new and old technologies for electricity.
- Have an awareness of the financing aspects of low carbon innovation.
ASSESSMENT

Assessment Table:

<table>
<thead>
<tr>
<th>Assessment type</th>
<th>Weighting</th>
<th>Group/ Individual</th>
<th>Formative/ Summative</th>
<th>Requirement to pass? Y/N</th>
<th>Timing in course schedule</th>
<th>Length (time/wordcount)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>30%</td>
<td>Group</td>
<td>Formative</td>
<td>N</td>
<td>Final Class</td>
<td>10 ppt slides</td>
</tr>
<tr>
<td>Market Analysis</td>
<td>70%</td>
<td>Individual</td>
<td>Summative</td>
<td>Y</td>
<td>Two weeks after final class for block week version; Friday of final week for weekly version.</td>
<td>3000 words</td>
</tr>
</tbody>
</table>

Minimum requirements to pass this course:
1) minimum 50% in the weighted final numerical score AND
2) minimum 50% in the aggregate of the individual components

Assessment and Learning Outcomes
The assessments for both the group presentations and individual market analysis will be based upon a compilation of the relevant facts, a sensible synthesis of the issues and a demonstration of a critical understanding of the topics covered in the course.

PRE-REQUISITES & RELATED COURSE
None

COURSE PREPARATION & READING

Prework: Two articles distributed prior to the first class

Course work: Consolidation of the classwork but no required case preparations

Course materials will be distributed:
Email class by class

TEACHING METHODS

Teaching/contact hours: 27.5
Suggested independent study hours: 10

The following teaching methods will be used on this course:

Lecture(s)
Guest Speaker(s)
Project(s)
Computer workshop
COURSE STRUCTURE
1. The Energy Commodities
2. Fundamentals of Global Oil Resources and Markets
3. Geopolitics of Gas
4. Modelling the global gas markets
5. Power market basics
6. The transmission and distribution businesses for power and gas.
7. Renewable policies and carbon finance
8. Investment in low-carbon technologies

EVALUATIONS

Evaluation Questions and Average Scores:

Q1. Overall, how much do you think you have learnt from the course?
Q2. How well do you believe the course met its stated objectives?
Q3. How would you rate the overall effectiveness of the faculty?
Q4. How would you rate the timeliness of the feedback on course work/assignments from the instructors?
Q5. To what extent did the faculty provide useful feedback on course work/assignments?
Q6. How well did the faculty manage high quality standards for class participation?
Q7. How much previous knowledge of the subject did you have?

<table>
<thead>
<tr>
<th>CODE</th>
<th>FORMAT</th>
<th>FACULTY</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
</tr>
</thead>
<tbody>
<tr>
<td>E348 A SPR15</td>
<td>BLOCK</td>
<td>Derek Bunn</td>
<td>4.36</td>
<td>4.15</td>
<td>4.58</td>
<td>4.07</td>
<td>4.31</td>
<td>4.13</td>
<td>2.59</td>
</tr>
<tr>
<td>E348 B SUM14</td>
<td>DAY</td>
<td>Derek Bunn</td>
<td>4.35</td>
<td>4.38</td>
<td>4.65</td>
<td>4.06</td>
<td>4.20</td>
<td>4.24</td>
<td>2.23</td>
</tr>
<tr>
<td>E348 B SUM15</td>
<td>DAY</td>
<td>Derek Bunn</td>
<td>4.38</td>
<td>4.34</td>
<td>4.47</td>
<td>4.25</td>
<td>4.13</td>
<td>4.19</td>
<td>2.84</td>
</tr>
<tr>
<td>E348 A SPR16</td>
<td>BLOCK</td>
<td>Derek Bunn</td>
<td>4.36</td>
<td>4.49</td>
<td>4.64</td>
<td>4.38</td>
<td>4.19</td>
<td>4.49</td>
<td>2.74</td>
</tr>
</tbody>
</table>