SO4 HOMEWORK

Tutor: Good morning, Phil, Jackie. I hope your project is going well.
Phil: Morning, Mr Jackson.
Jackie: Hi Mr Jackson. Well, we've made a start on analysing the different forms of renewable energy, but unfortunately we don't really agree on some points.
Tutor: OK, why don't we talk about it?
Phil: Well, Jackie believes that all forms of renewable energy are beneficial economically, whereas I doubt that that's true for all of them.
Tutor: Such as?
Phil: Such as wind, wave and solar energy because they're less reliable.
Tutor: That's a valid point but I don't think that's a large enough factor to disregard it completely.
Jackie: Exactly, that's what I said.
Phil: However, another drawback is that they're generally very expensive to produce.
Tutor: Yes, you're right. And that *is* a concern when evaluating their usefulness in future.
Jackie: I agree with you to a point, but it's likely that the cost will come down. I read a report in the *Journal of Environmental Science* that estimates the cost would fall by twenty per cent over the next ten years, which is significant, isn't it?
Tutor: Absolutely, Jackie. But you need to think about how difficult it is to predict the future cost of non-traditional energy sources before you believe the report. Remember: in your project I want to see evidence of critical analysis. Make sure you've analysed all the information rather than just accepting the information that you agree with. Also it's very important that you demonstrate wide reading around the subject.
Jackie: I know, it's just that I'm not convinced that it's going to continue to be that expensive, especially if there's a demand from consumers.
Phil: Well, what about if we analyse the costing process as part of our project?
Tutor: That's an excellent idea, Phil. OK, so let's imagine that we want to forecast the cost of producing solar energy. How could we do that, Jackie?
Jackie: Um, well, I think we'd have to start by working out how many hours of daylight there are in the UK per year.
Phil: The Meteorological Office would have data on that.
Jackie: Then estimate the number of hours of sun to get a rough total.
Phil: And then I suppose we'd need to work out how much it would cost to supply the average home with solar power, and then extrapolate *that* to get a number for the whole country.
Tutor: Good, and don't forget the price of power conversion stations – this will have a significant impact on overall expenditure. And there's one more factor you haven't taken into account yet, regarding the consumers.
Jackie: Um ... whether they would change from traditional to renewable energy?
Tutor: No, but think about what might make them change?
Jackie: Oh, yes. How much they would be willing to pay.
Tutor: Exactly. Well done.

Phil: So, our project is going to cover three main areas. Firstly, comparing the main forms of alternative energy: solar, wind, wave, and bio fuels in terms of production costs. Secondly, we'll take solar energy as an example and do a cost prediction, and lastly we'll analyse whether they're likely to replace traditional fossil fuels in the future.
Tutor: That sounds like a comprehensive project with a good focus. Now, what data are you going to use and what approach will you use for the analysis?

Jackie: Ah! Now that's something we *do* agree on! We want to use the reports you gave us in our last lecture and some statistics from the government Environment and Energy Department. In terms of analysis, we're going to use a cross-referencing method where we compare each of the government reports with the Robertson report and highlight any differences. Then we'll analyse these to see why the differences exist and where more research needs to be done.

LIVEWORKSHEETS