Commodities and Energy Markets: Interactions with Climate Policy

Take-home essay assignment

Submission This essay is due to be returned by **midnight (23:59:59), Sunday January 12th, 2025**. Submission is via Virtuale.

Marks The essay makes up 40% of the overall mark for the course.

Assessment The essay will be evaluated based on, in decreasing order of importance: (1) the correctness of your arguments, drawing on relevant academic literature; (2) the clarity with which you make your arguments; (3) the thoroughness of your arguments, within the limits of the essay length; (4) overall writing and style.

Length The essay is up to 2,000 words, including references. Please use the word count functionality on your word processor. This is a maximum, not a target!

Format Please submit the essay as a Word document (.docx, .rtf).

Oral exam There will be a brief oral examination (MS Teams) in January on the content of your essay. This will be a short chat – 10-15 minutes at most – in which we talk about your essay and about the papers you have discussed in your essay.

Collaboration The essay is written **individually** by each student. You can of course collaborate in terms of the research, but the final written product needs to be your own.

Plagiarism Please make sure to avoid plagiarism. The essay needs to be in your own words. Your task is to synthesise and summarise, not to copy-and-paste-with-minor-rewording. Please see my essay guidelines and a short, useful 'How to avoid plagiarism' comic on Virtuale.

Use of AI While there is no way to monitor your use of AI to help with the writing, I make the following points:

- The oral examination will test how well you understand the arguments you make in the essay.
- While generative AI is remarkably good in generating text these days, it often makes severe logical mistakes. So relying solely on generative AI is a very risky option.
- Finally (and most importantly!): you are taking this course to *learn*, and you will *only* learn by putting in the hard work of trying to understand the subject material. You only get what you put in!

Style This is a *scientific* essay, not a general polemic or discussion. Please make *precise and specific* claims in your essay and refer to the source material. I encourage you to refer to equations, variables, terminology, regression results, etc. If you want to, you can even use your own equations (but make sure you do it correctly!).

Topics Three alternative essay topics are listed on the following pages. Please pick one. Each topic lists a main reference; please make sure you discuss that reference. You can also discuss additional references, whether listed here or ones you find yourself (but beware – there are many papers out there on the internet which are not of very high quality, some of them seemingly peer-reviewed!).

Essay topic 1: Green paradox

Is the green paradox real? Please discuss critically the evidence presented by Norman and Schlenker (2024): "Empirical tests of the green paradox for climate legislation", including a discussion of how the empirical strategy employed by the authors helps them make causal claims. Do you find the presented evidence credible?

Main reference

Norman, M.A., and W. Schlenker (2024): *Empirical tests of the green paradox for climate legislation*, NBER Working paper 32405.

Other literature

Di Maria, C., I. Lange and E. Van der Werf (2014): Should we be worried about the green paradox? Announcement effects of the Acid Rain Program, *European Economic Review* 69: 143-162.

Essay topic 2: Oil extraction and climate policy

"A carbon tax can only affect when oil is extracted; it will not affect total extraction, and thus it will not affect how much climate change our oil use will lead to." Discuss critically with reference to models with geology and/or investment.

Main reference

Anderson, S.T., R. Kellogg, and S.W. Salant (2018): Hotelling Under Pressure, *Journal of Political Economy* 126: 984-1026.

Other literature

Venables, A.J. (2015): Depletion and Development: Natural Resource Supply with Endogenous Field Opening, *Journal of the Association of Environmental and Resource Economists* 1: 313-450.

Essay topic 3: Critical transition minerals and climate policy

How would a rapidly tightening climate policy affect the demand for energy transition metals -- is there a 'green paradox'? Discuss critically the evidence presented by Boer *et al*. (2024): "Energy Transition Metals: Bottleneck for Net-Zero Emissions?" and consider how climate policy might affect the supply of exhaustible resources necessary for the green transition.

Main reference

Boer, L, A. Pescatori and M. Stuermer (2024): Energy Transition Metals: Bottleneck for Net-Zero Emissions?, *Journal of the European Economic Association* 22: 200-229.

Other literature

Faber, A., M. Fodha and F. Ricci (2015): Mineral resources for renewable energy: Optimal timing of energy production, *Resource and Energy Economics* 59: 101131.