| AECHE 2024  **Narrogin SHS Year 11 ATAR CHEMISTRY Name:** | |
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| Task No: | 4a |
| Task Type: | Extended Response |
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| Content: | Chemical reactions: CO2 emissions |
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| Task Description:  1.  2.  3.  4.  5. | Select **one** of the following fuels to research   * coal * crude oil (petroleum) * petrol (gasoline) * (petro)diesel * LPG * natural gas * biogas * biodiesel * bioethanol * methanol * EcaleneTM     Briefly outline how the fuel is extracted, processed or produced.  Identify the main components (give the name and, where practical, the chemical formula)  Determine the energy output of these fuels in MJ/kg. Assume complete combustion for the comparison.  Determine the carbon dioxide produced for complete combustion of each of the fuels in kg/kg.  Comment on the validity of assuming complete combustion in determining energy output or carbon emissions. Explain your reason for either accepting or rejecting the assumption.  Prepare a 2-minute PowerPoint presentation.  **In class one lesson; At home 2 weeks**  **You will sit a validation test based on all presentation content.** |
| Total Marks: | 12 |
| Weighting: | 2% |
| Due Date: | Wednesday 8 May 2024 (assignment and presentation) |

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| Marking Requirement: | | Mark Allocation | Mark |
| 1 | * Briefly outlines extraction, processing or production | 2 |  |
| 2 | * Identifies main component(s) by name and or formula | 1 |  |
| 3 | * Determines energy output in MJ/kg | 1 |  |
| 4 | * Determines CO2 output in kg/kg | 1 |  |
| 5 | * Discusses of fuel to oxygen ratio generally or in a particular application * Statement about validity of assuming complete combustion for energy and CO2 outputs (linked to discussion about fuel to oxygen ratio) | 2 |  |
| Presentation | * Presentation is clear, informative and contains necessary information at a suitable level of detail * Presentation shows suitable use of graphics, text, animations and transitions * Presentation is close to 2 minutes in length | 3 |  |
| References | * References: at least 5, in suitable format | 2 |  |
|  |  | Total /12 |  |