***Problem:***

How would you produce fuel for the jetpack at home base?

***Solution:***

Oxygen can be produced by the decomposition of CO2 (Mars' atmosphere is made up of 96% CO2). Water can be produced by the 'Sabatier reaction': CO2 +4H2 ==> 2H2O + CH4    -165 kJ/mol, this also takes advantage of the Martian atmosphere. The methane produced can be used as an everyday fuel at base camp. Microbial electrolysis can be used to split the urea in urine into hydrogen and oxygen.