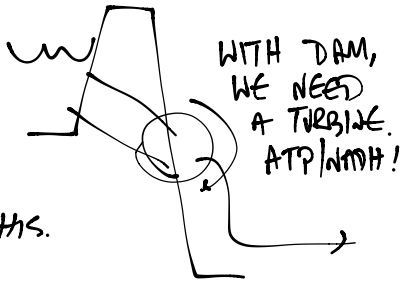


$C_6H_{12}O_6 + 6O_2 \rightleftharpoons 6CO_2 + 6H_2O$

EXOTHERMIC OXIDATION REACTION.

BURNING FIELD ⇝ CAPTURE AND REGULATE THIS.

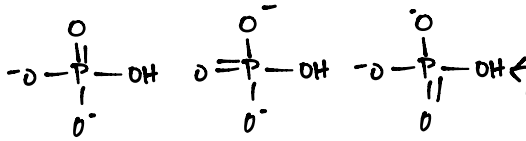
TWO KEY MOLECULES: ATP AND NADH

ENERGY ELECTRONS

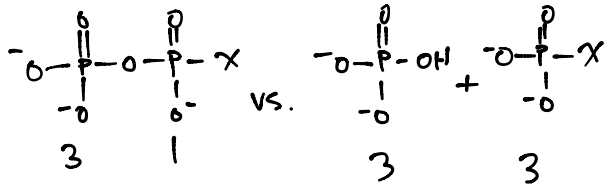
WHY IS THIS A "HIGH ENERGY" BOND?

$ATP \rightleftharpoons ADP + P_i$ (x kJ/mol)

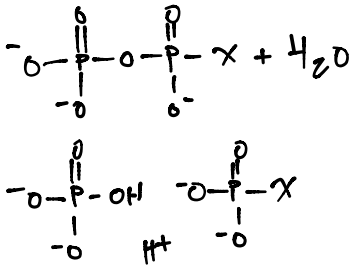
① ELECTROSTATIC REPULSION



② RESONANCE.

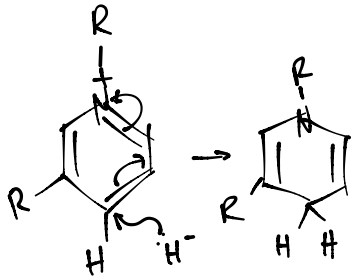


③ ENTROPY BUMP.

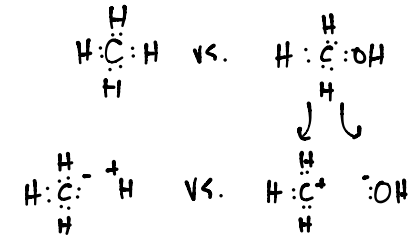


NADH:

$H^- + NAD^+ \rightleftharpoons NADH$

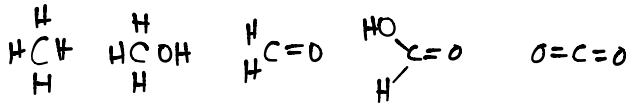


WHY IS CARBON MORE OXIDIZED AS METHANOL VS. METHYL?



ELECTRONEGATIVITY DETERMINES WHO "OWNS" ELECTRONS.

E.NEG. → 3.4 3.0 2.6 2.2
O > N > C = S > P = H



-813 -697 -519 -282 ∅ ← ENERGY RELEASED WHEN OXIDIZED TO CO_2.

kJ/mol

INCREASING OXIDATION

DETERMINE REDOX POTENTIAL CHANGE OF REACTION

$E_{ACCEPTOR} - E_{DONOR} \rightarrow \Delta E$

0.015 − −0.315 = 0.360 ← YES. NADH CAN OXIDIZE PYRUVATE

(PYRUVATE) (NADH)