Comparing Heats of Atom Combination and Heats of Formation

substance	$\Delta H°_{ac}$ (kJ/mol$_{rxn}$)	$\Delta H°_{f}$ (kJ/mol$_{rxn}$)
H*(g)*	0	218.2
C*(g)*	0	716.682
N*(g)*	0	470.4
O*(g)*	0	249.4
C*(s, graphite)*	–716.682	0
C*(s, diamond)*	–714.787	1.90
H^+*(aq)*	–217.65	0
OH^-*(aq)*	–696.81	–229.94
H_2*(g)*	–435.30	0
N_2*(g)*	–945.408	0
O_2*(g)*	–498.340	0
CH_4*(g)*	–1662.09	–74.85
CO_2*(g)*	–1608.531	–393.5
H_2O*(g)*	–926.29	–241.8
H_2O*(l)*	–970.30	–285.5
NH_3*(g)*	–1171.76	–46.3
NO_2*(g)*	–937.86	33.85
N_2O_4*(g)*	–1932.93	9.66