Sample Lattice Energy Problem #2:

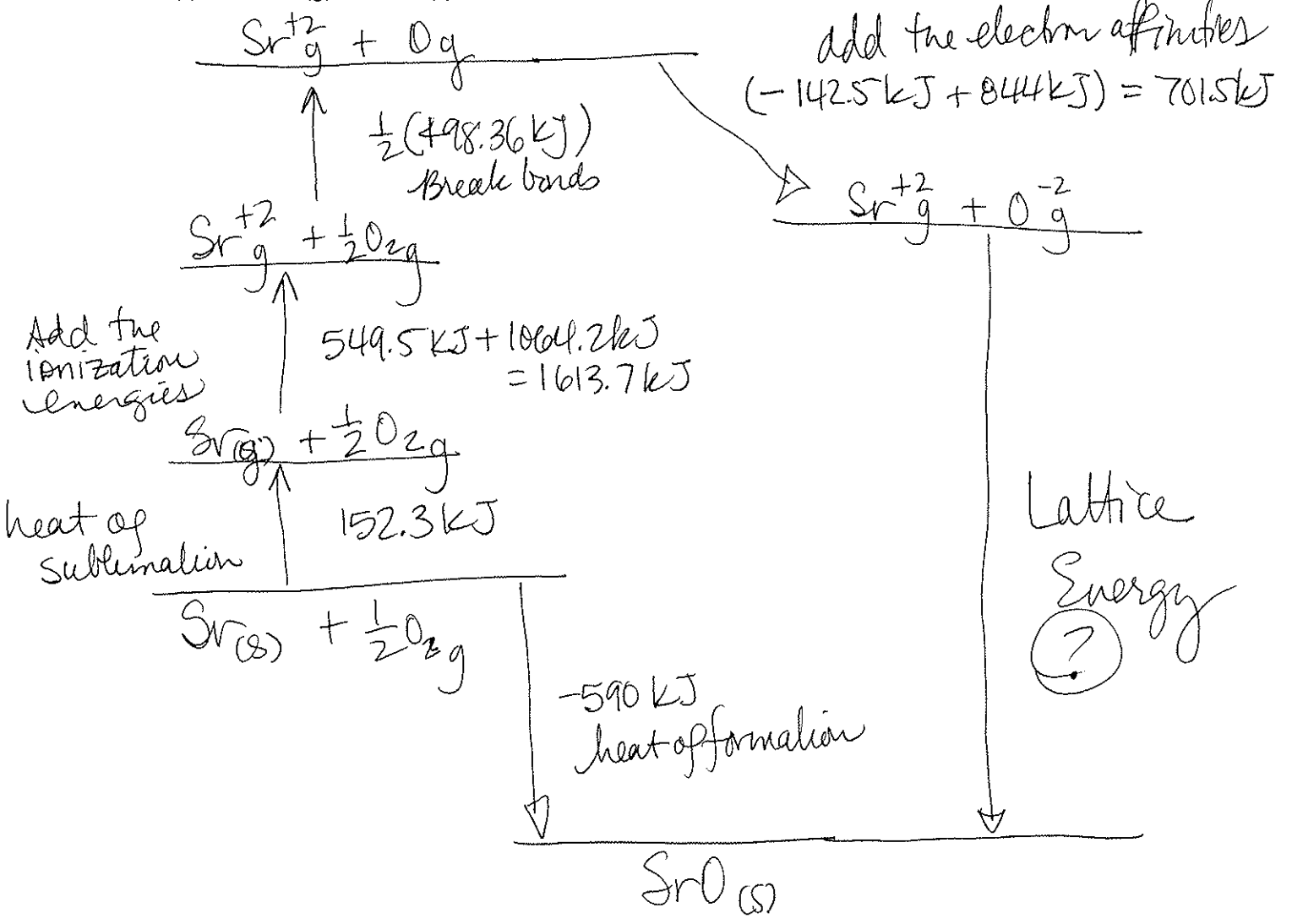
What is the lattice energy of SrO?

Reactions	Energies (kJ/mol)
$Sr\ (s) \rightarrow Sr\ (g)$	152.3
$Sr\ (g) \rightarrow Sr^{+}\ (g) + e^-$	549.5
$Sr^{+}\ (g) \rightarrow Sr^{2+}\ (g) + e^-$	1064.2
$O_2\ (g) \rightarrow 2\ O\ (g)$	498.36
$O\ (g) + e^- \rightarrow O^-\ (g)$	-142.5
$O^-\ (g) + e^- \rightarrow O^{2-}\ (g)$	844
$Sr\ (s) + 1/2\ O_2\ (g) \rightarrow SrO\ (s)$	$\Delta H^\circ_f = -590$

$-590 = 152.3 + 1613.7 + 249.18 + 701.5 + L.E.$

$-590 = 2716.68 + L.E.$

$-3,306.68\ kJ$ = Lattice energy of SrO



Sample Lattice Energy Problem #1:

What is the lattice energy of $CaCl_2$?

Reactions	Energies (kJ/mol)
Ca (s) → Ca (g)	178.0
Ca (g) → Ca^+ (g) + e-	590.0
Ca^+ (g) → Ca^{2+} (g) + e-	1145
Cl_2 (g) → 2 Cl (g)	242.6
Cl (g) + e- → Cl^- (g)	−348.7
Ca (s) + Cl_2 → CaCl (s)	$\Delta H°_f$ = -795.0

$-795.0 = 178.0 + 1735.0 + 242.6 + -697.4 + L.E.$

$-795.0 = \quad , + L.E.$

$-2253.2 \frac{kJ}{mole}$ = Lattice Energy $CaCl_2$