Supporting information for:

Water adsorption at the (010) and (101) surfaces of $CuWO_4$

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- Table S1. Adsorption energy calculated by DFT at 0 K (ΔE_{DFT}), Zero-point energy (ΔE_{zpe}), vibrational contribution to the entropy (ΔS), and Helmholtz free energy (ΔF) of pristine (010) and reduced (101) surface.

Configuration	ΔE_{DFT} (eV)	ΔE_{zpe} (eV)	ΔS(J/(mol·K)	ΔF(eV)
Pristine (010) surface				
μ_3_η^3	-0.89	0.09	0.00012	-0.84
μ_2_η^2	-0.69	0.09	0.00012	-0.64
μ_1_η^1	-0.69	0.09	0.00012	-0.64
μ_2_η^2	-0.26	0.09	0.00011	-0.21
μ_2_η^2	-0.12	0.08	0.00015	-0.09
Reduced (101) surface				
μ_2_η^2	-0.81	0.09	0.00012	-0.76
μ_2_η^2	-0.63	0.09	0.00012	-0.58
μ_3_η^3	-0.53	0.08	0.00012	-0.48
μ_3_η^3	-0.53	0.08	0.00016	-0.50

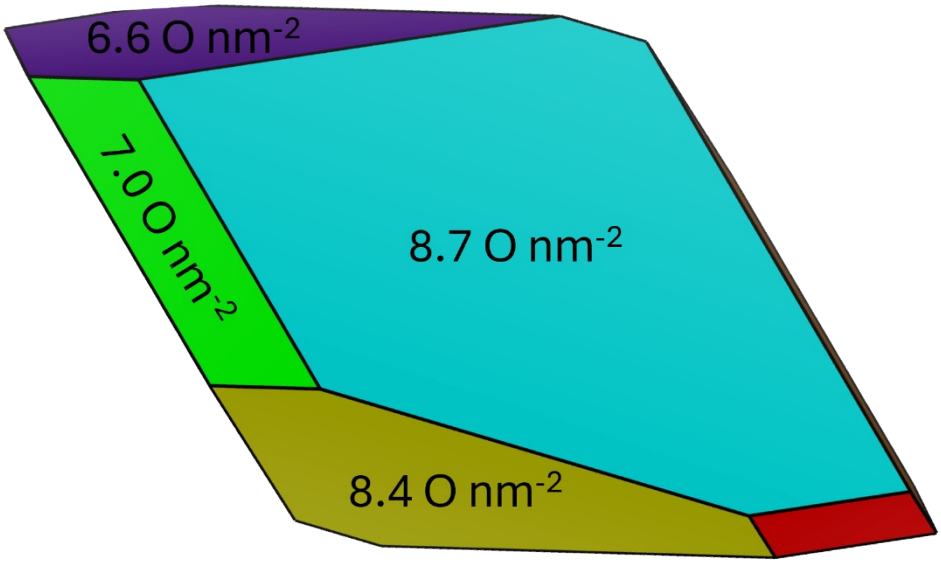

Figure S1. The equilibrium morphologies of $CuWO_4$ under 700 K. The pristine (001), oxidized (011), oxidized (100), oxidized (110), and oxidized (111) surfaces are coloured in red, yellow, green, cyan, and purple, respectively. The surface coverage of each surface is noted in the figure.