

# ADAPT Confidence Campaign

Generated (UTC): 2026-02-21T18:52:07.530562+00:00

## Scope:

Methods: exact, HF, hardcoded VQE, Qiskit VQE, ADAPT-UCCSD(adapt/fixed), ADAPT-CSE

Sites: [2, 3]

## Gates:

VQE:  $L2 \leq 1.0e-08$ ,  $L3 \leq 1.0e-06$

ADAPT-UCCSD fixed:  $L2 \leq 1.0e-08$ ,  $L3 \leq 1.0e-06$

ADAPT-UCCSD adapt:  $L2 \leq 1.0e-07$ ,  $L3 \leq 1.0e-05$

ADAPT-CSE:  $\text{gap\_closure} \geq 0.90$

## Run caps:

per\_method\_max\_time\_s=20.0

adapt\_trial\_max\_time\_s=5.0

adapt\_fixed\_trial\_max\_time\_s=8.0

## L=2 (n\_up=1, n\_down=1)

Exact=-0.836057118155 HF= 4.500000000000

Hardcoded VQE (UCCSD) E=-0.836057110705 |dE|=7.450e-09 t=0.19s gate\_pass=True

Qiskit VQE (UCCSD) E=-0.836057117595 |dE|=5.600e-10 t=2.77s gate\_pass=True

ADAPT-UCCSD (Fixed Sequence) E=-0.507936507927 |dE|=3.281e-01 t=12.52s gate\_pass=False

ADAPT-UCCSD (Adaptive) E=-0.507936507936 |dE|=3.281e-01 t=26.75s gate\_pass=False

ADAPT-CSE (Adaptive) E=-0.506312970694 |dE|=3.297e-01 t=8.80s gate\_pass=True

## L=3 (n\_up=2, n\_down=1)

Exact=-1.236067977500 HF= 4.000000000000

Hardcoded VQE (UCCSD) E=-1.236067973953 |dE|=3.547e-09 t=7.62s gate\_pass=True

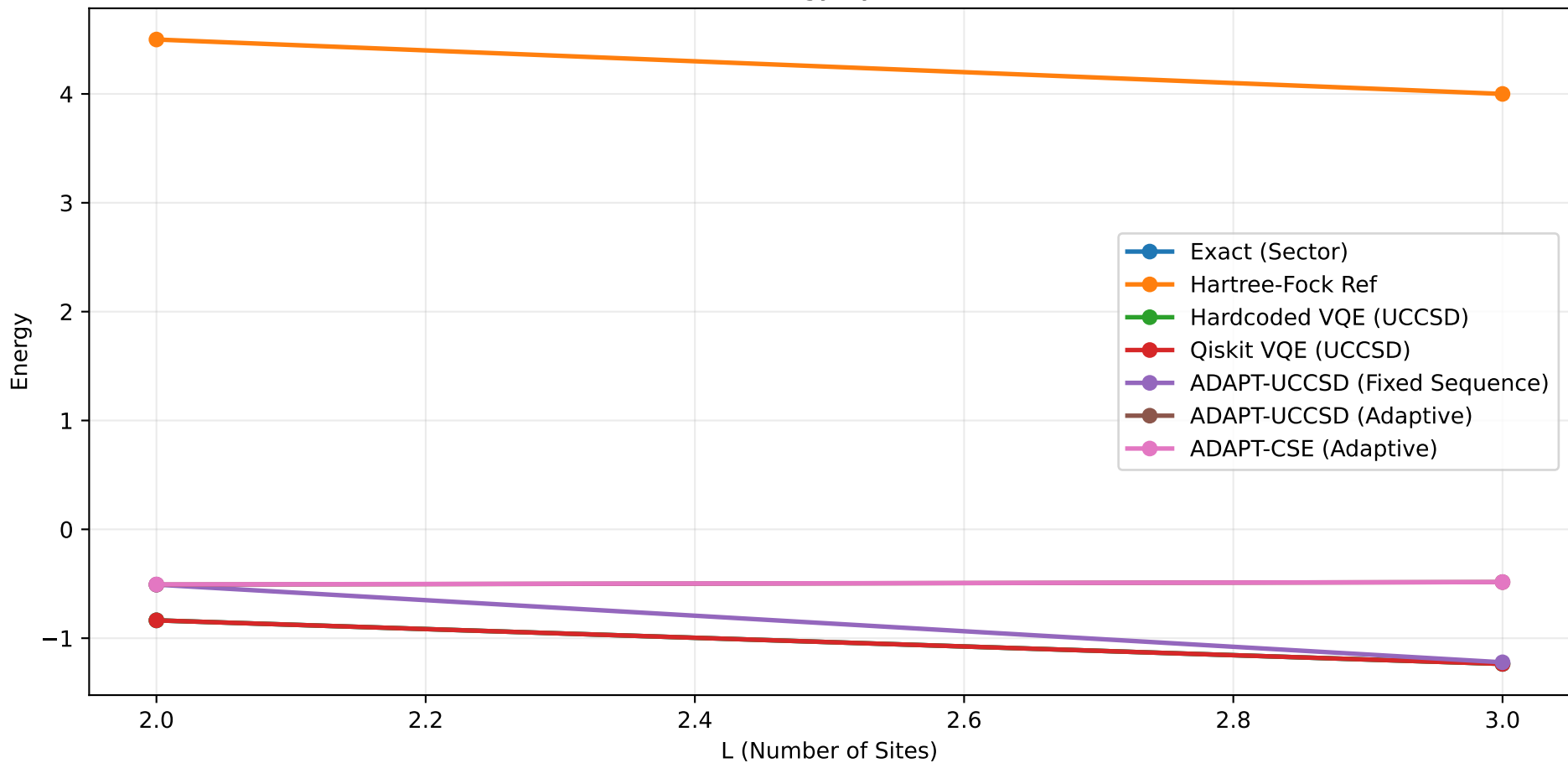
Qiskit VQE (UCCSD) E=-1.236067939546 |dE|=3.795e-08 t=54.75s gate\_pass=True

ADAPT-UCCSD (Fixed Sequence) E=-1.221399776886 |dE|=1.467e-02 t=643.95s gate\_pass=False

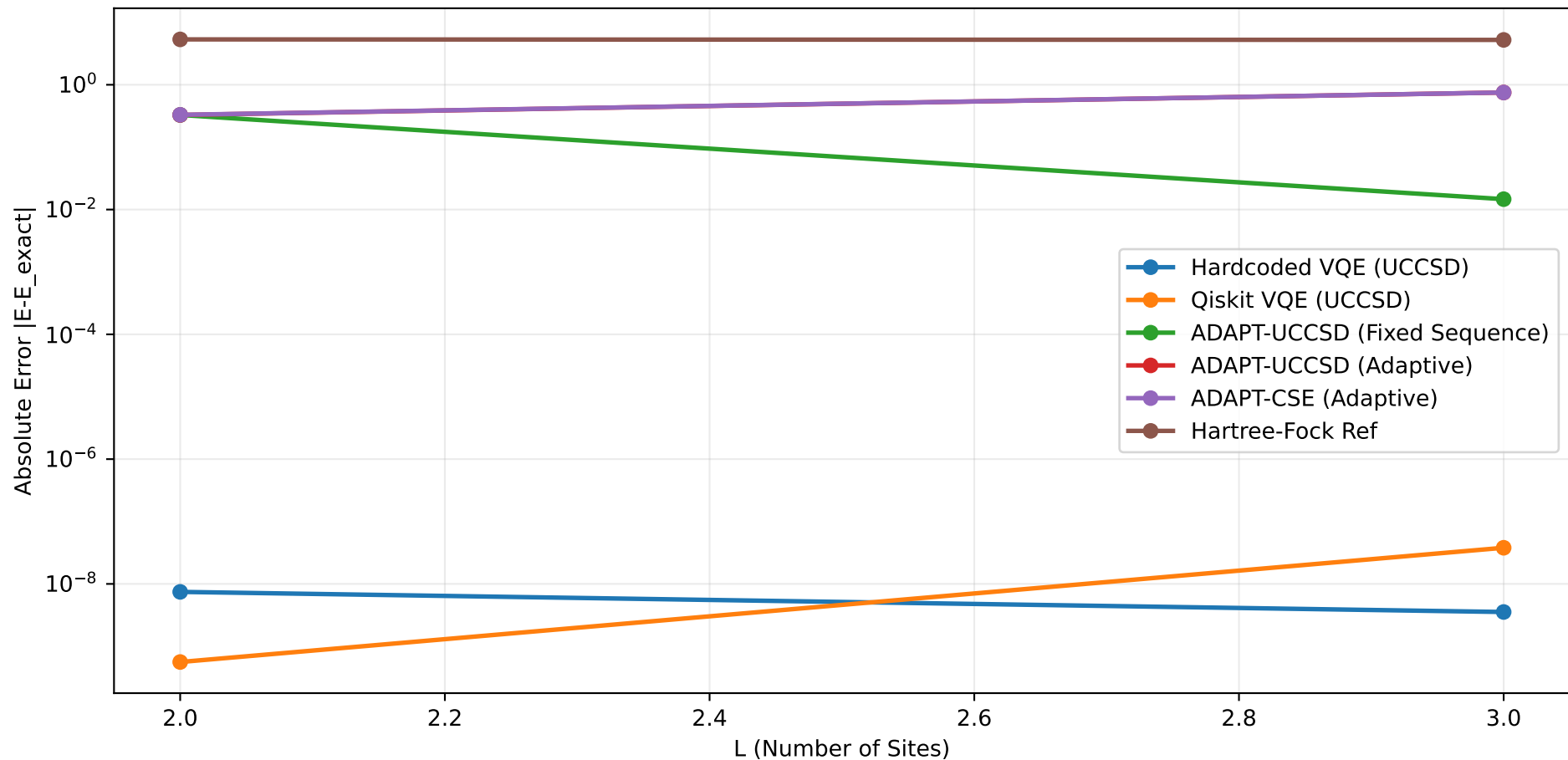
ADAPT-UCCSD (Adaptive) E=-0.484435331766 |dE|=7.516e-01 t=8.78s gate\_pass=False

ADAPT-CSE (Adaptive) E=-0.484435331759 |dE|=7.516e-01 t=8.63s gate\_pass=False

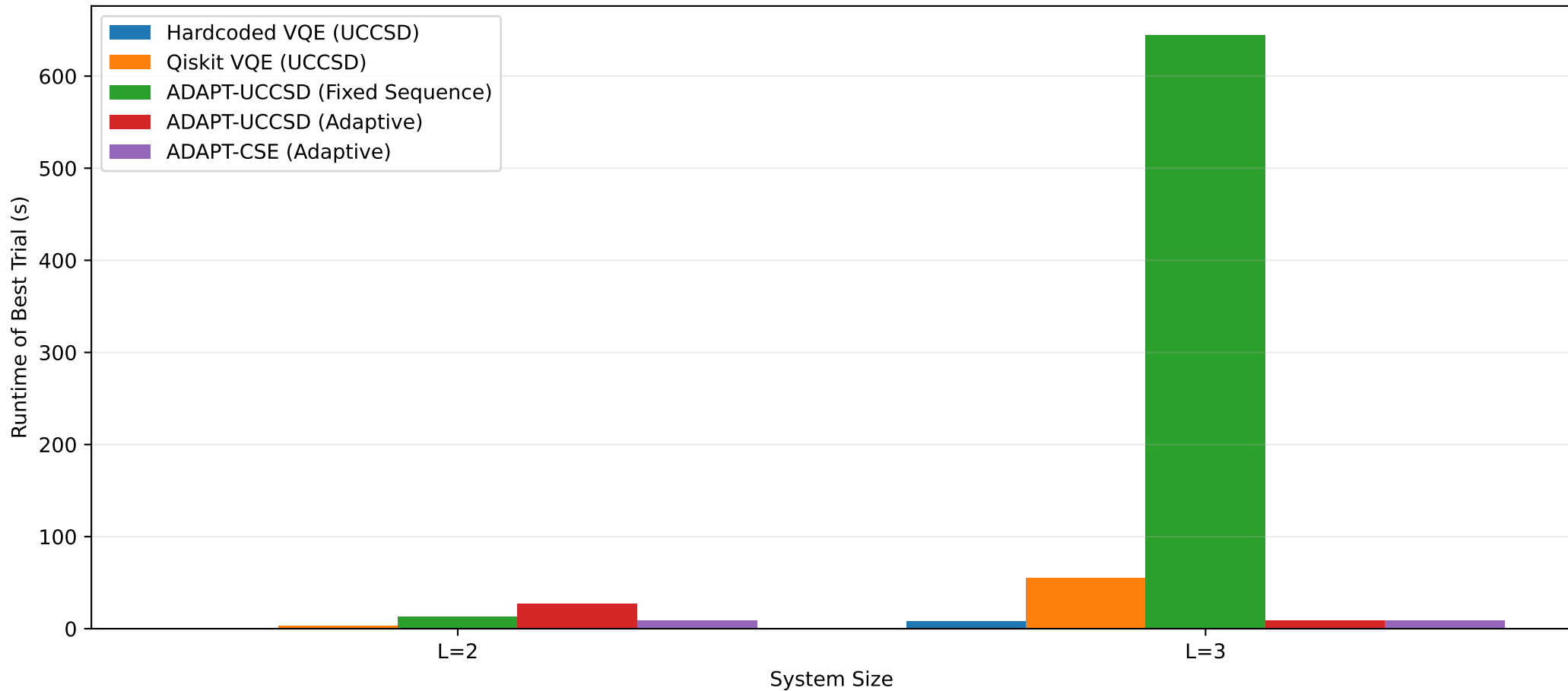
Best Energy by Method



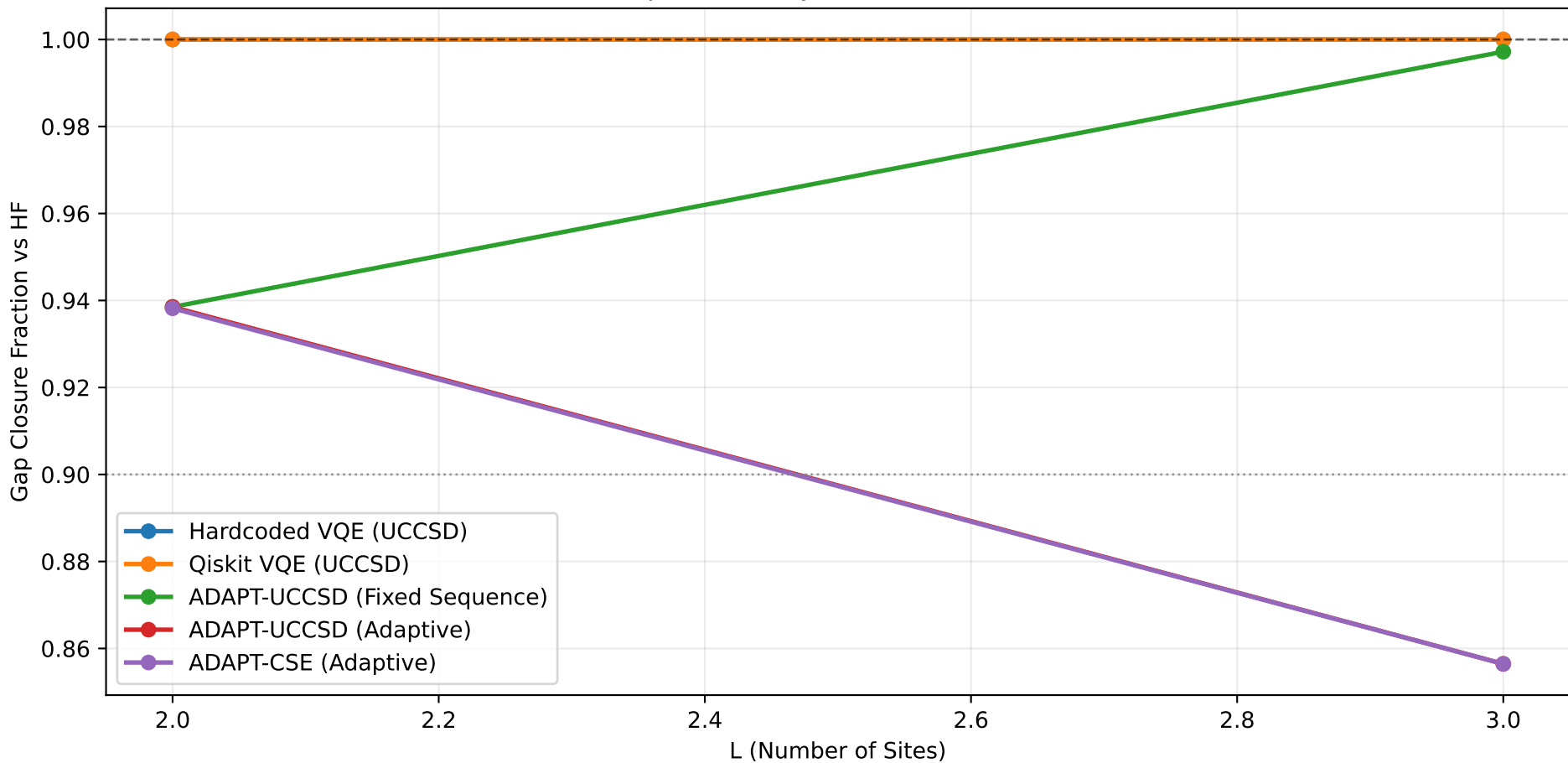
Best Absolute Error vs Exact



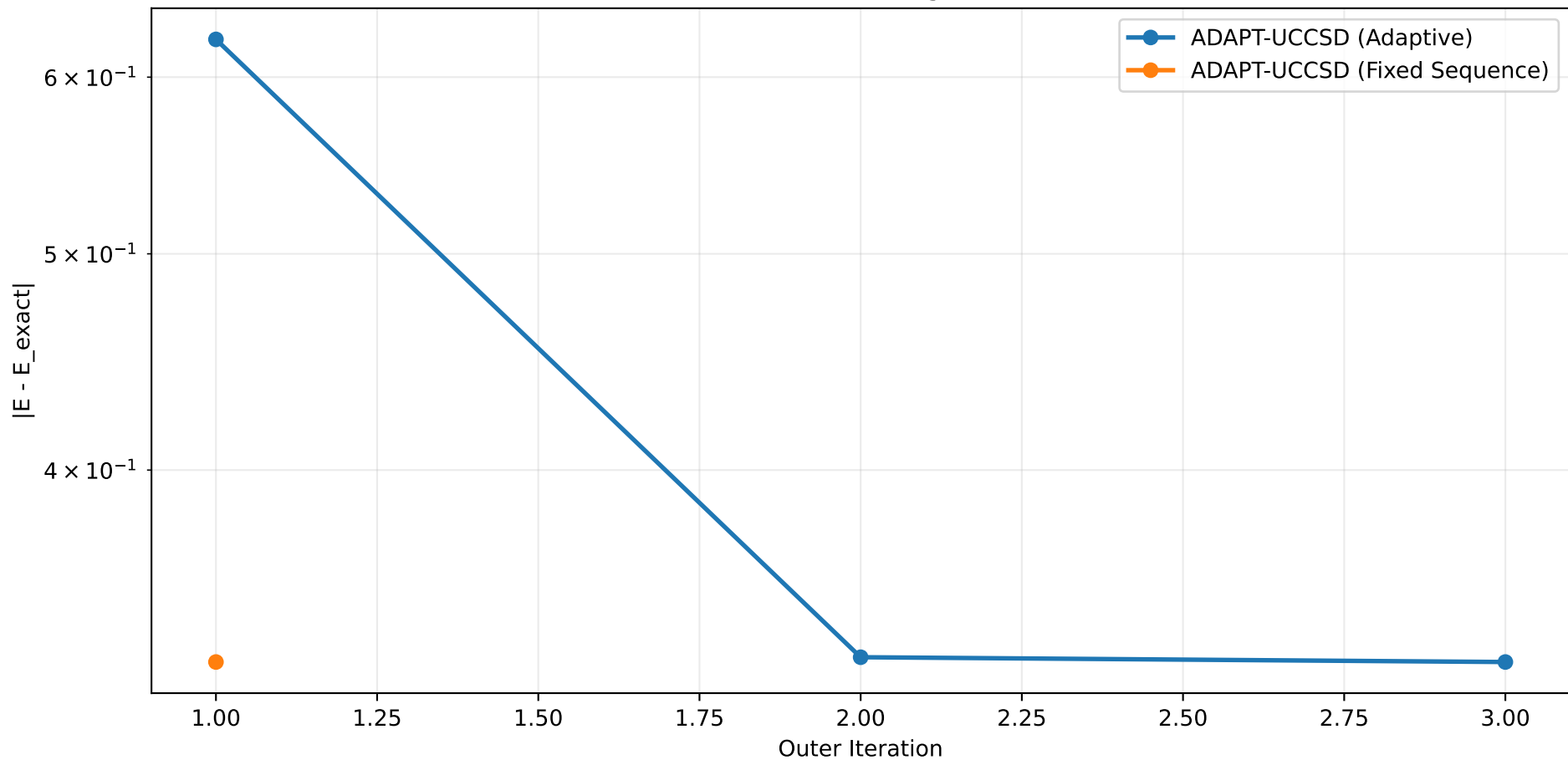
Best-Trial Runtime by Method



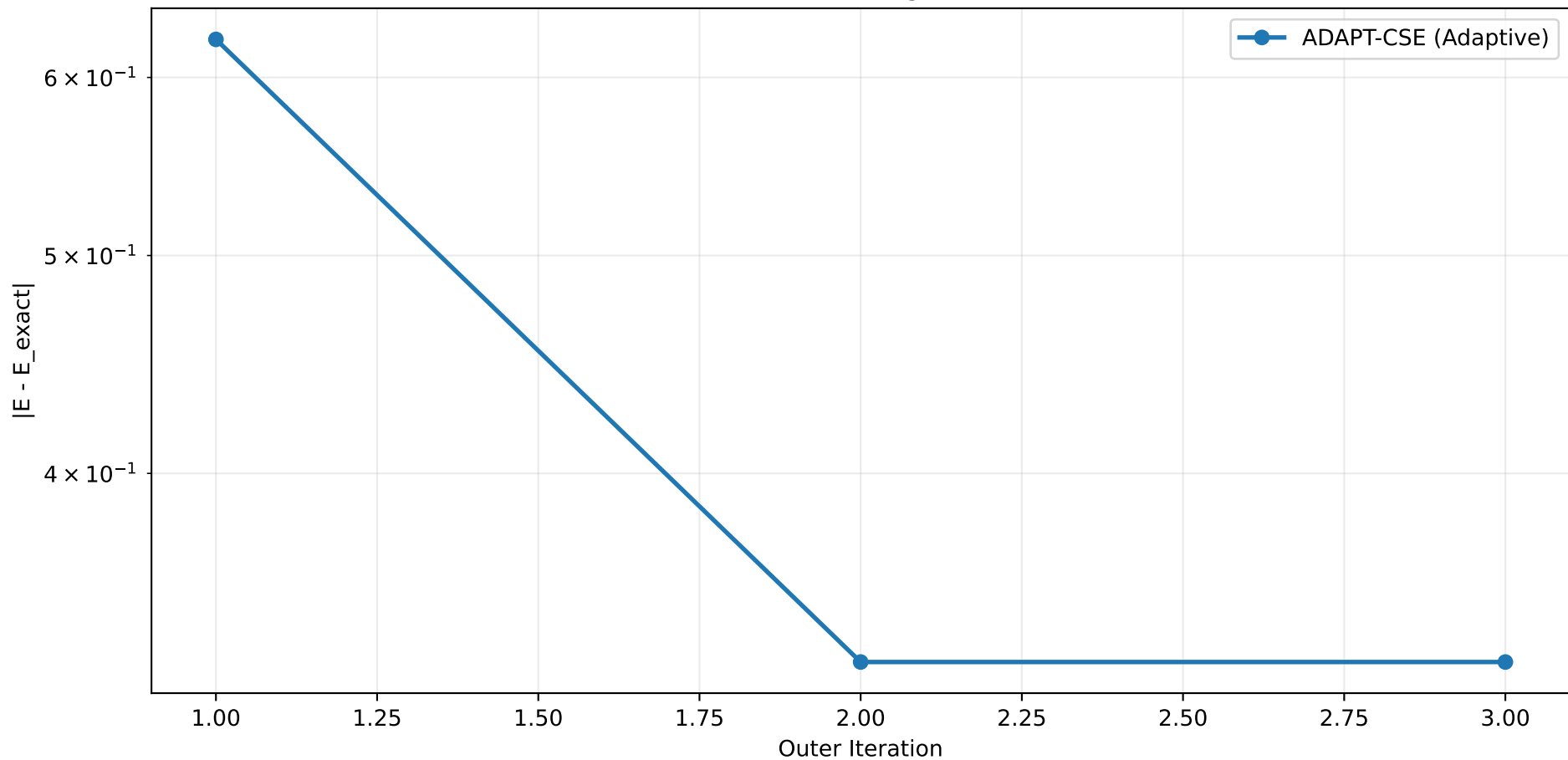
HF Gap-Closure by Method (1.0 = exact)



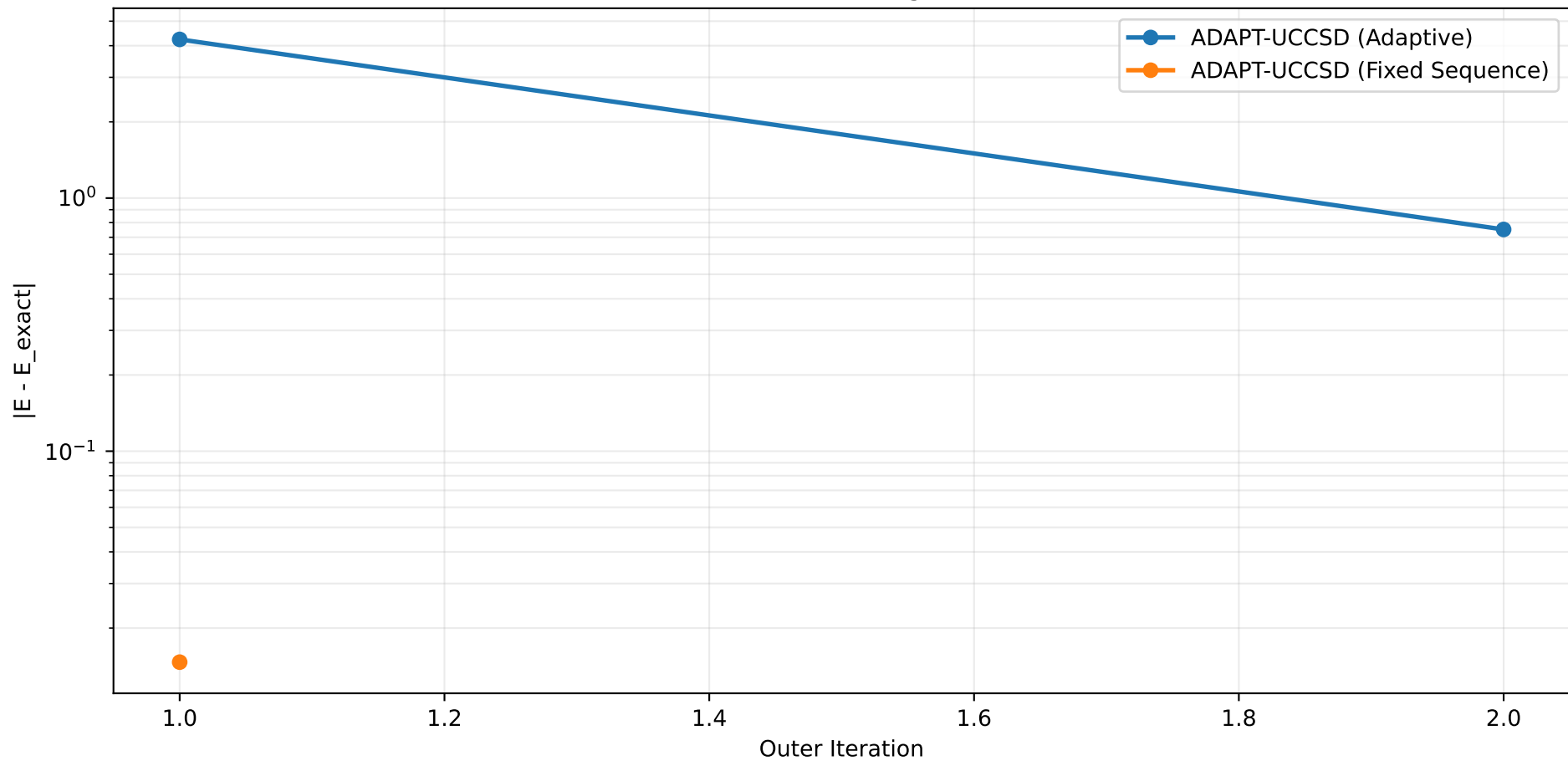
ADAPT-UCCSD Convergence (L=2)



ADAPT-CSE Convergence (L=2)



ADAPT-UCCSD Convergence (L=3)



ADAPT-CSE Convergence (L=3)

