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ADAPT Confidence Campaign
Generated (UTC): 2026-02-21T19:00:27.599766+00:00

Scope:
  Methods: exact, HF, hardcoded VQE, Qiskit VQE, ADAPT-UCCSD(adapt/fixed), ADAPT-CSE
  Sites: [2, 3]

Gates:
  VQE: L2<=1.0e-08, L3<=1.0e-06
  ADAPT-UCCSD fixed: L2<=1.0e-08, L3<=1.0e-06
  ADAPT-UCCSD adapt: L2<=1.0e-07, L3<=1.0e-05
  ADAPT-CSE: gap_closure>=0.90

Run caps:
  per_method_max_time_s=12.0
  adapt_trial_max_time_s=2.0
  adapt_fixed_trial_max_time_s=3.0

L=2 (n_up=1, n_down=1)
  Exact=-0.836057118155   HF= 4.500000000000
  Hardcoded VQE (UCCSD)          E=-0.836056968909 |dE|=1.492e-07 t=0.16s gate_pass=False
  Qiskit VQE (UCCSD)             E=-0.836057117595 |dE|=5.600e-10 t=4.72s gate_pass=True
  ADAPT-UCCSD (Fixed Sequence)   E=-0.020821263064 |dE|=8.152e-01 t=6.81s gate_pass=False
  ADAPT-UCCSD (Adaptive)         E=-0.506312970694 |dE|=3.297e-01 t=2.21s gate_pass=False
  ADAPT-CSE (Adaptive)           E=-0.506312970693 |dE|=3.297e-01 t=3.17s gate_pass=True

L=3 (n_up=2, n_down=1)
  Exact=-1.236067977500   HF= 4.000000000000
  Hardcoded VQE (UCCSD)          E=-1.236067844029 |dE|=1.335e-07 t=5.15s gate_pass=True
  Qiskit VQE (UCCSD)             E=-1.236044321811 |dE|=2.366e-05 t=76.55s gate_pass=False
  ADAPT-UCCSD (Fixed Sequence)   E= 4.000000000000 |dE|=5.236e+00 t=5.66s gate_pass=False
  ADAPT-UCCSD (Adaptive)         E= 3.000000000000 |dE|=4.236e+00 t=3.34s gate_pass=False
  ADAPT-CSE (Adaptive)           E= 3.000000000000 |dE|=4.236e+00 t=3.84s gate_pass=False
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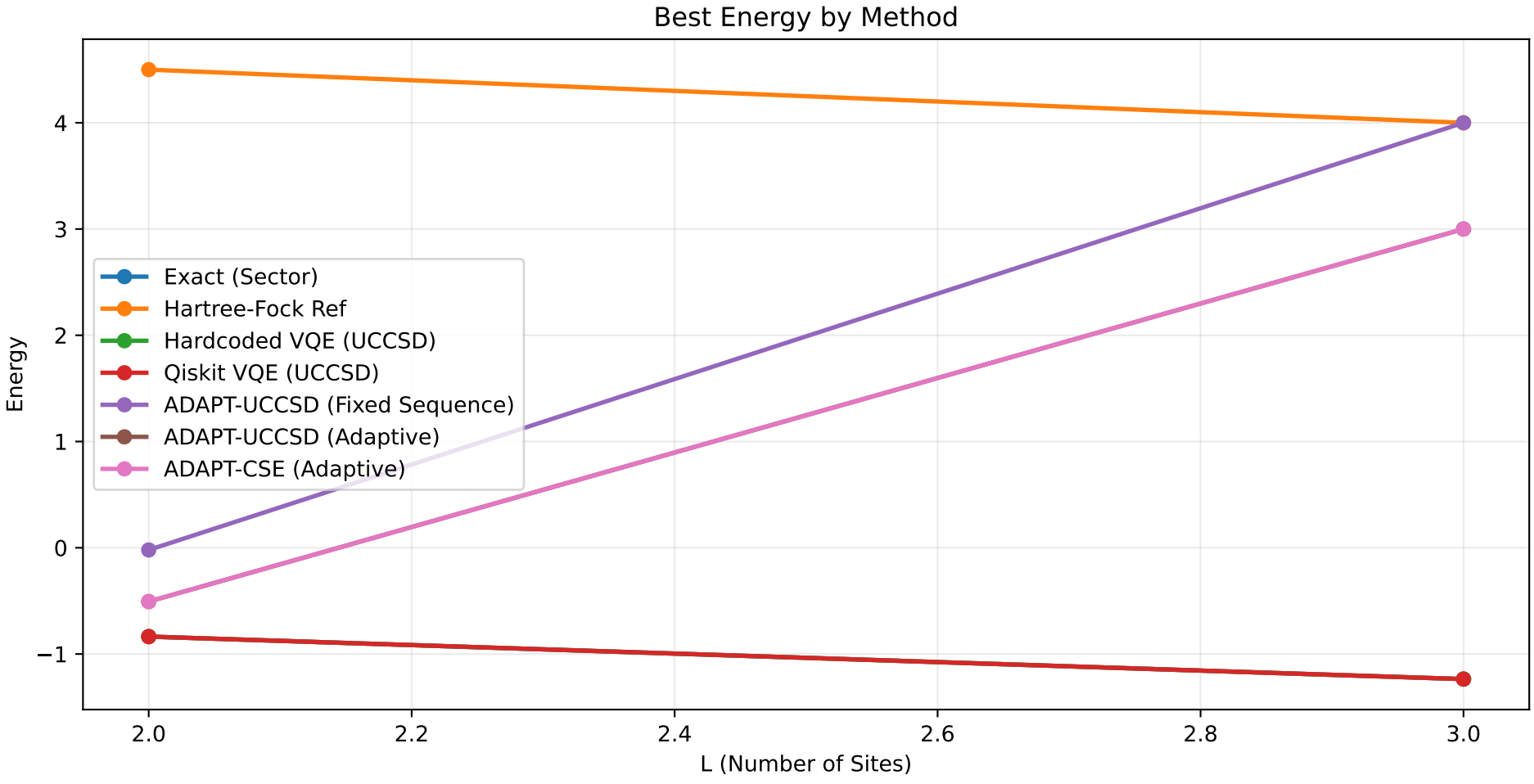
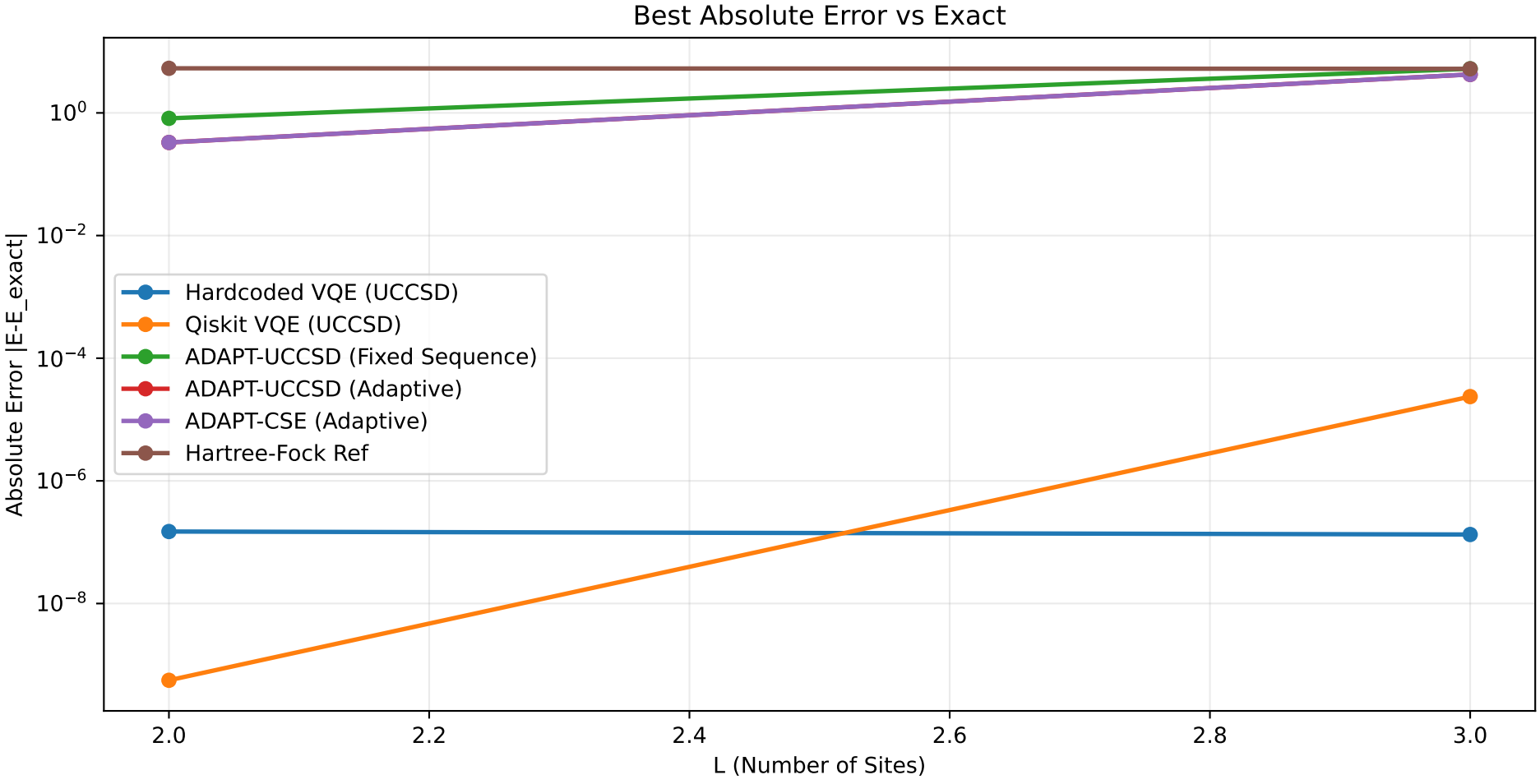
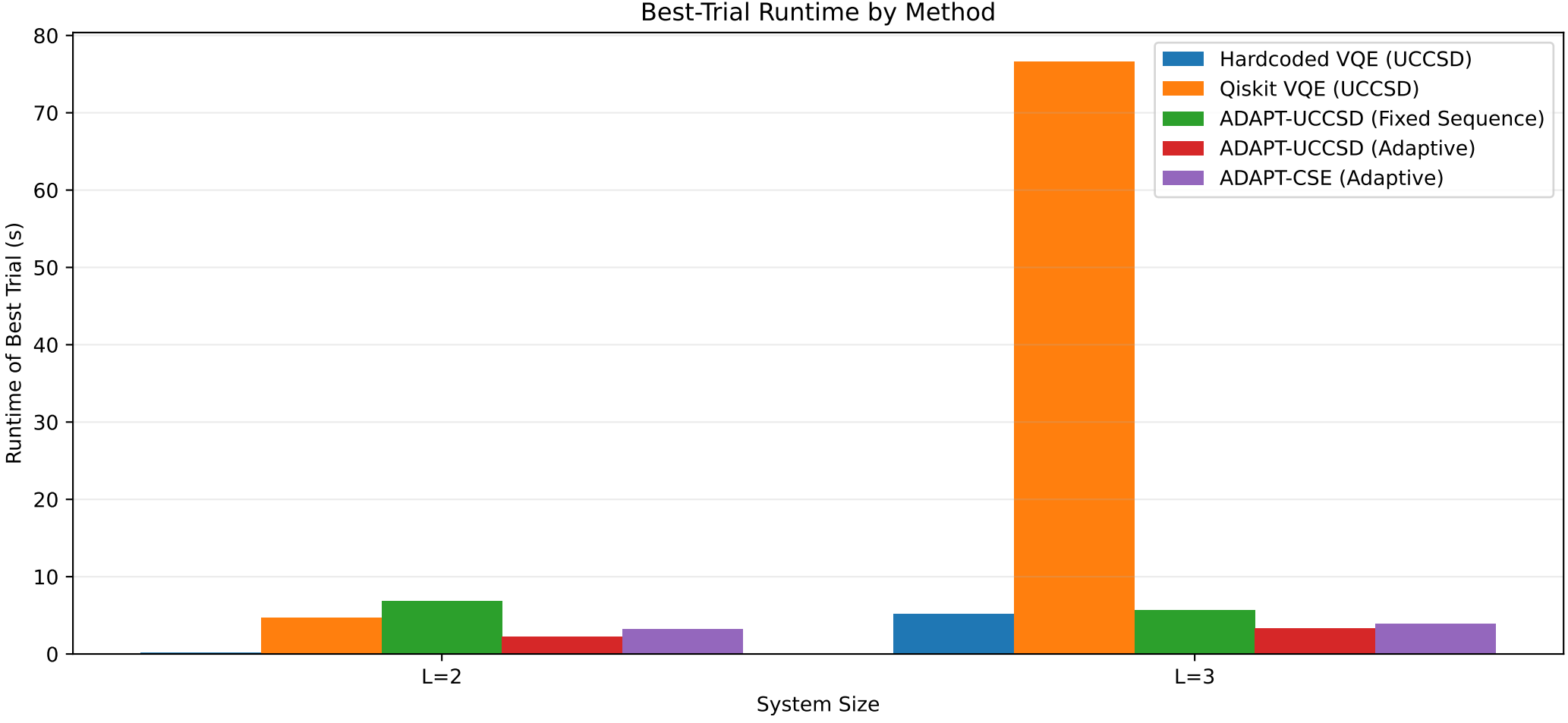
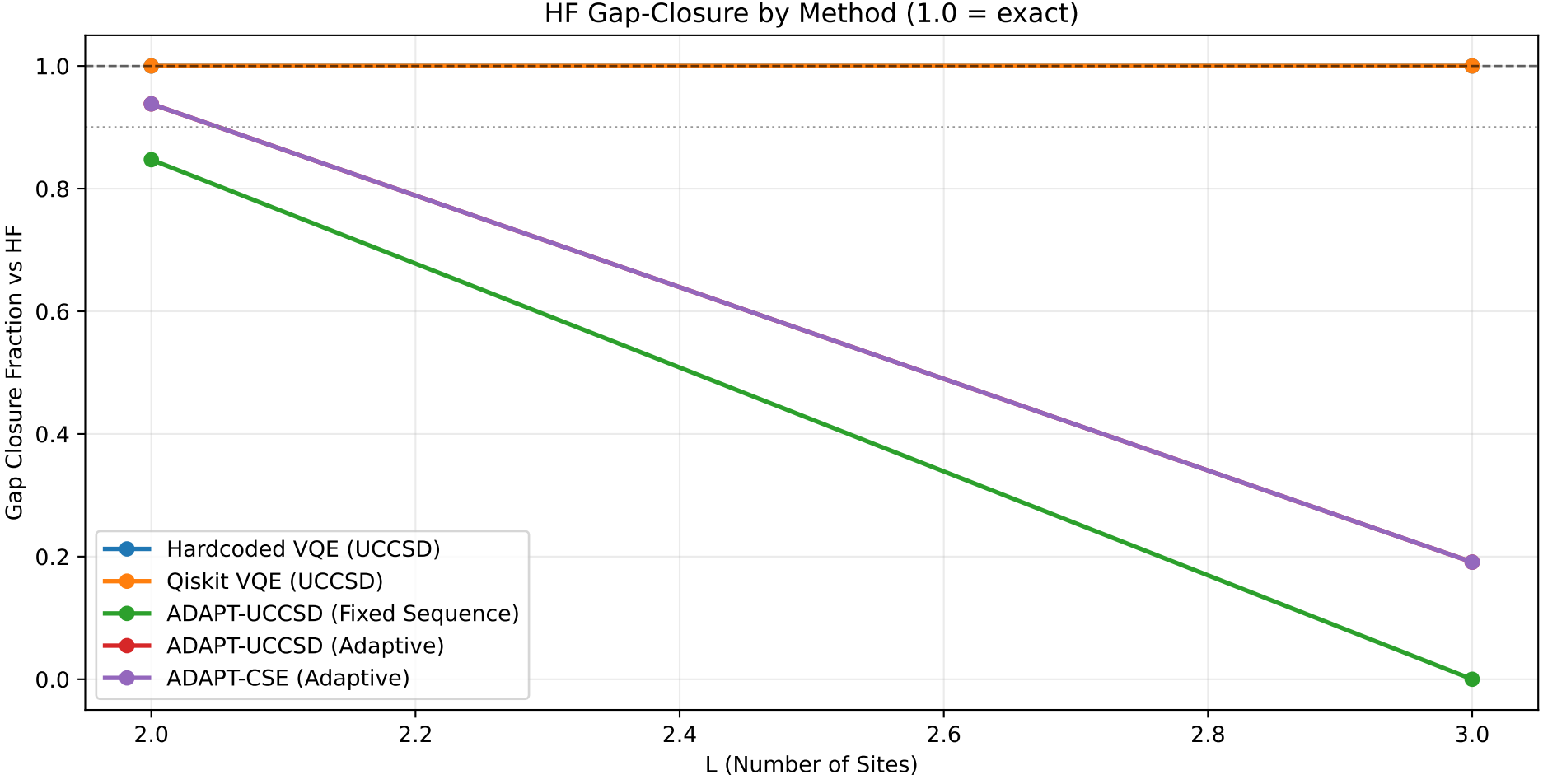
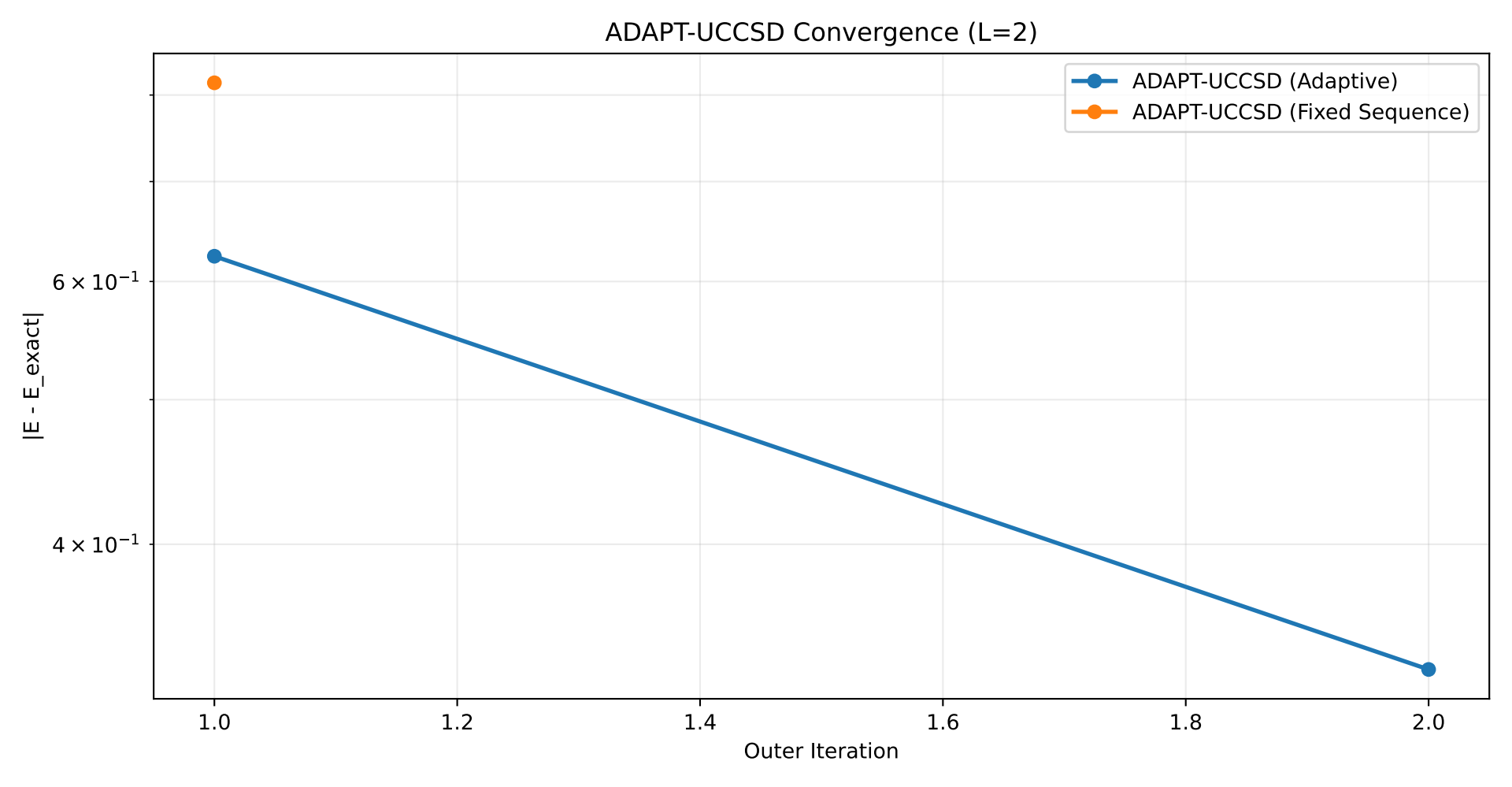
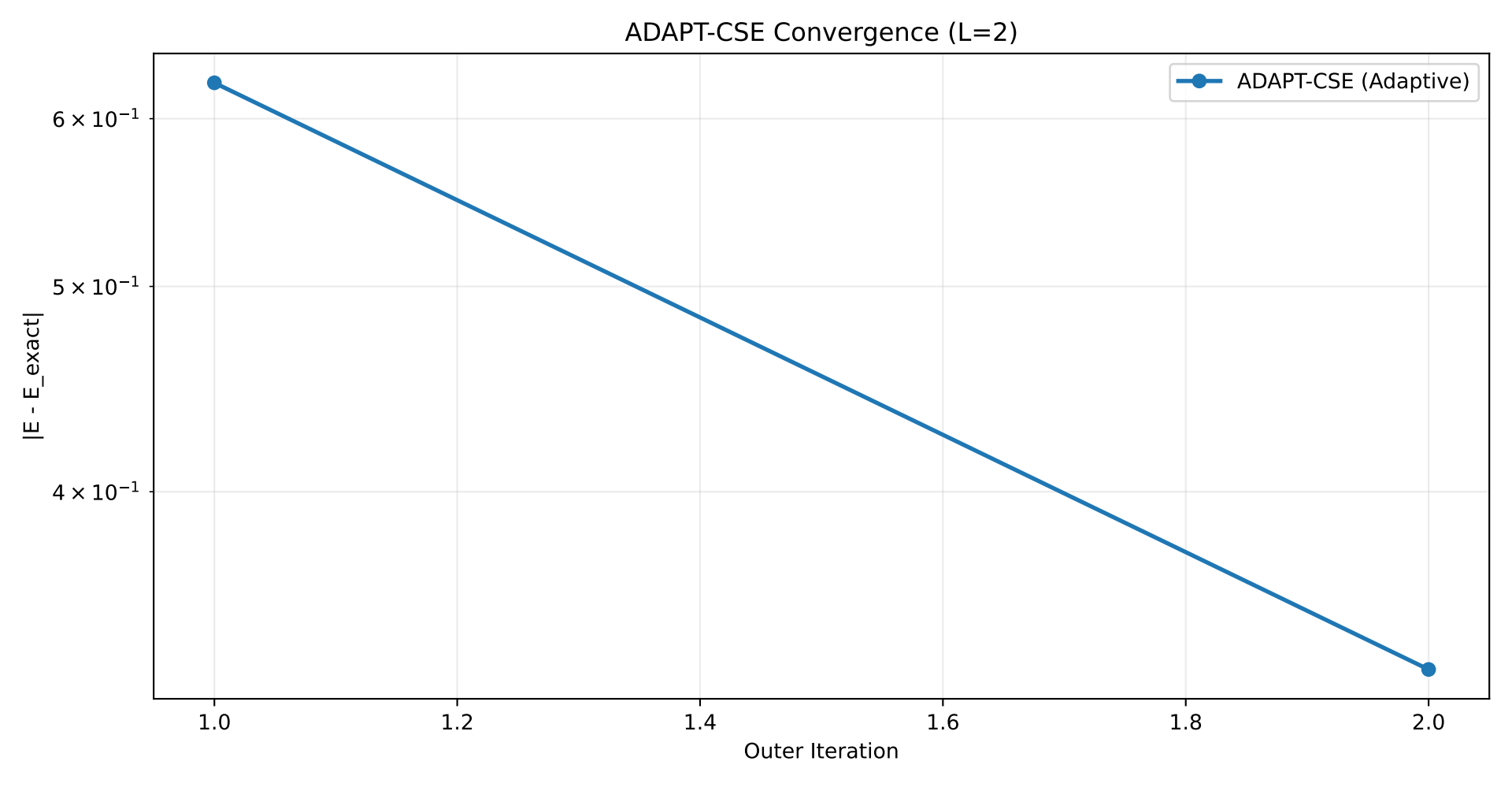

Best Energy by Method
Energy
L (Number of Sites)
Exact (Sector)
Hartree-Fock Ref
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)
4
3
2
1
0
−1
2.0
2.2
2.4
2.6
2.8
3.0

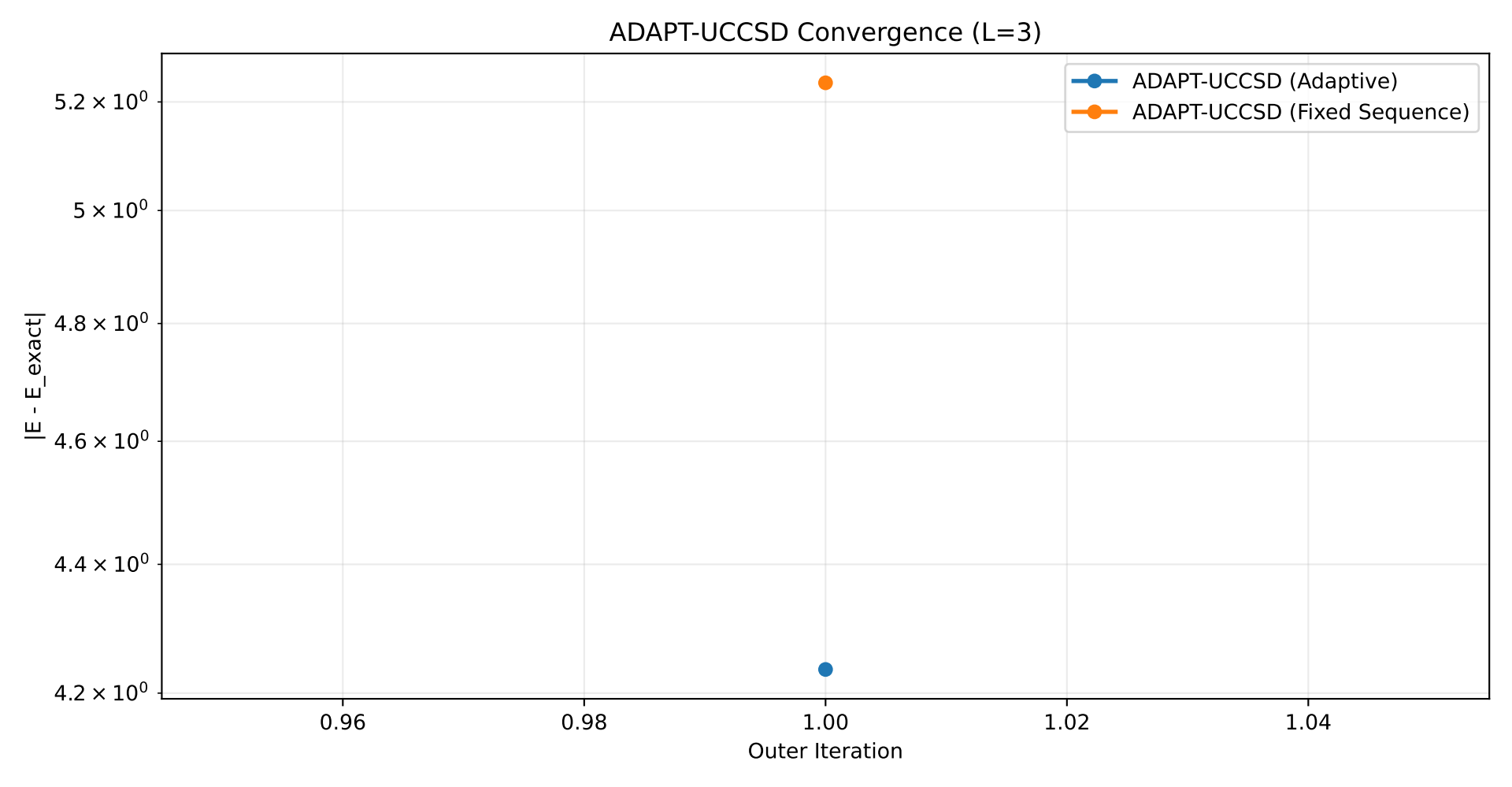

Best Absolute Error vs Exact
Absolute Error |E-E_exact|
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)
Hartree-Fock Ref
2.0
2.2
2.4
2.6
2.8
3.0
L (Number of Sites)

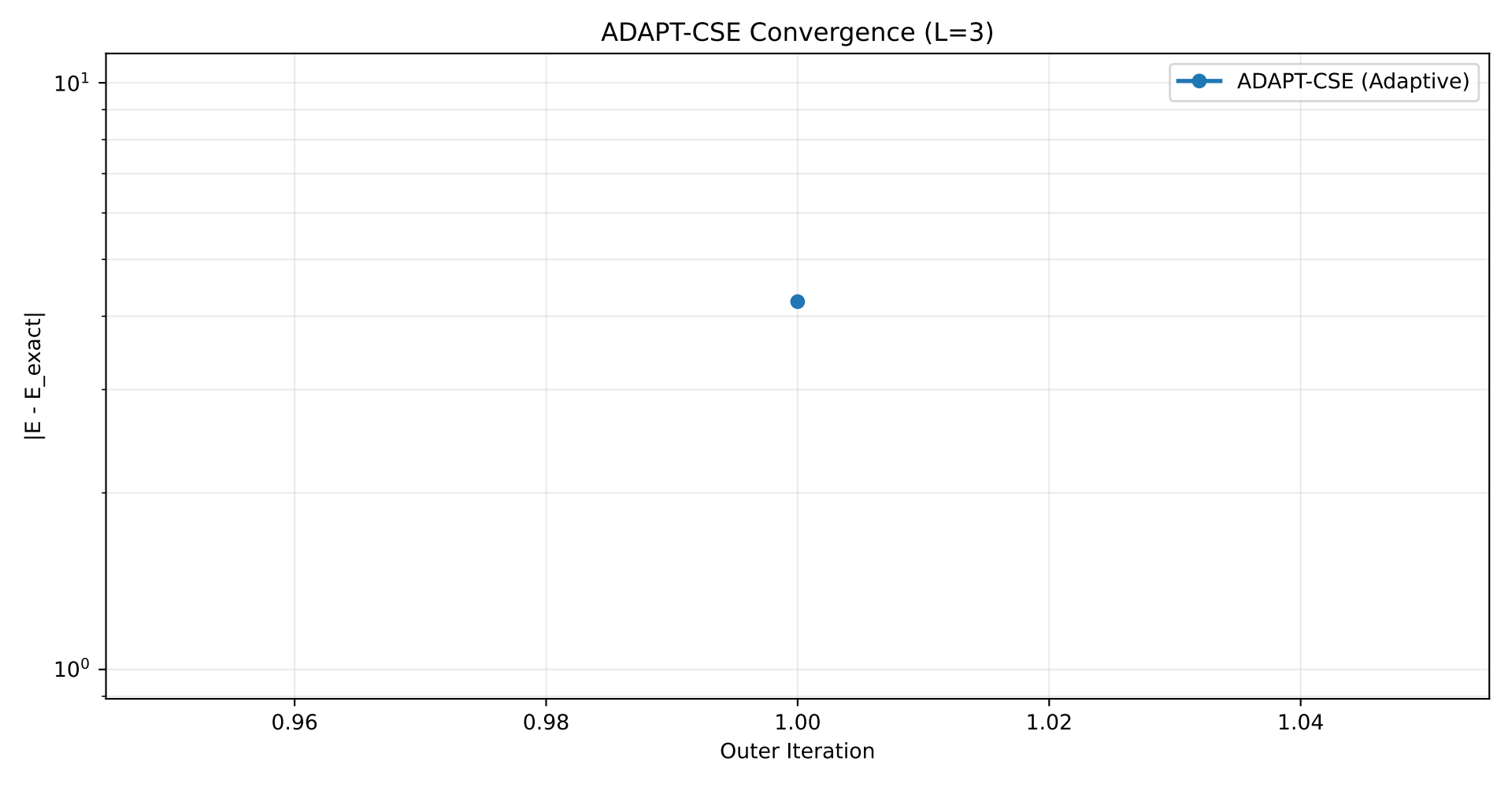

Best-Trial Runtime by Method
Runtime of Best Trial (s)
0
10
20
30
40
50
60
70
80
L=2
L=3
System Size
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)


HF Gap-Closure by Method (1.0 = exact)
Gap Closure Fraction vs HF
L (Number of Sites)
1.0
0.8
0.6
0.4
0.2
0.0
2.0
2.2
2.4
2.6
2.8
3.0
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)


ADAPT-UCCSD Convergence (L=2)
ADAPT-UCCSD (Adaptive)
ADAPT-UCCSD (Fixed Sequence)
|E - E_exact|
6×10^{-1}
4×10^{-1}
1.0
1.2
1.4
1.6
1.8
2.0
Outer Iteration


ADAPT-CSE Convergence (L=2)
ADAPT-CSE (Adaptive)
|E - E_exact|
6×10^{-1}
5×10^{-1}
4×10^{-1}
1.0
1.2
1.4
1.6
1.8
2.0
Outer Iteration


ADAPT-UCCSD Convergence (L=3)
ADAPT-UCCSD (Adaptive)
ADAPT-UCCSD (Fixed Sequence)
|E - E_exact|
5.2 × 10^0
5 × 10^0
4.8 × 10^0
4.6 × 10^0
4.4 × 10^0
4.2 × 10^0
0.96
0.98
1.00
1.02
1.04
Outer Iteration


ADAPT-CSE Convergence (L=3)
ADAPT-CSE (Adaptive)
10^1
10^0
|E - E_exact|
0.96
0.98
1.00
1.02
1.04
Outer Iteration