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ADAPT Confidence Campaign
Generated (UTC): 2026-02-21T18:51:41.010058+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=90.0
  adapt_trial_max_time_s=30.0
  adapt_fixed_trial_max_time_s=45.0

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=0.21s gate_pass=True
  Qiskit VQE (UCCSD)             E=-0.836057117595 |dE|=5.600e-10 t=3.01s gate_pass=True
  ADAPT-UCCSD (Fixed Sequence)   E=-0.507936507937 |dE|=3.281e-01 t=19.15s gate_pass=False
  ADAPT-UCCSD (Adaptive)         E=-0.507936507936 |dE|=3.281e-01 t=22.77s gate_pass=False
  ADAPT-CSE (Adaptive)           E=-0.506312970694 |dE|=3.297e-01 t=6.08s 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=6.97s gate_pass=True
  Qiskit VQE (UCCSD)             E=-1.236067939546 |dE|=3.795e-08 t=54.13s gate_pass=True
  ADAPT-UCCSD (Fixed Sequence)   E=-1.221399776886 |dE|=1.467e-02 t=558.42s gate_pass=False
  ADAPT-UCCSD (Adaptive)         E=-0.969560234766 |dE|=2.665e-01 t=56.32s gate_pass=False
  ADAPT-CSE (Adaptive)           E=-0.964712231458 |dE|=2.714e-01 t=28.39s gate_pass=True
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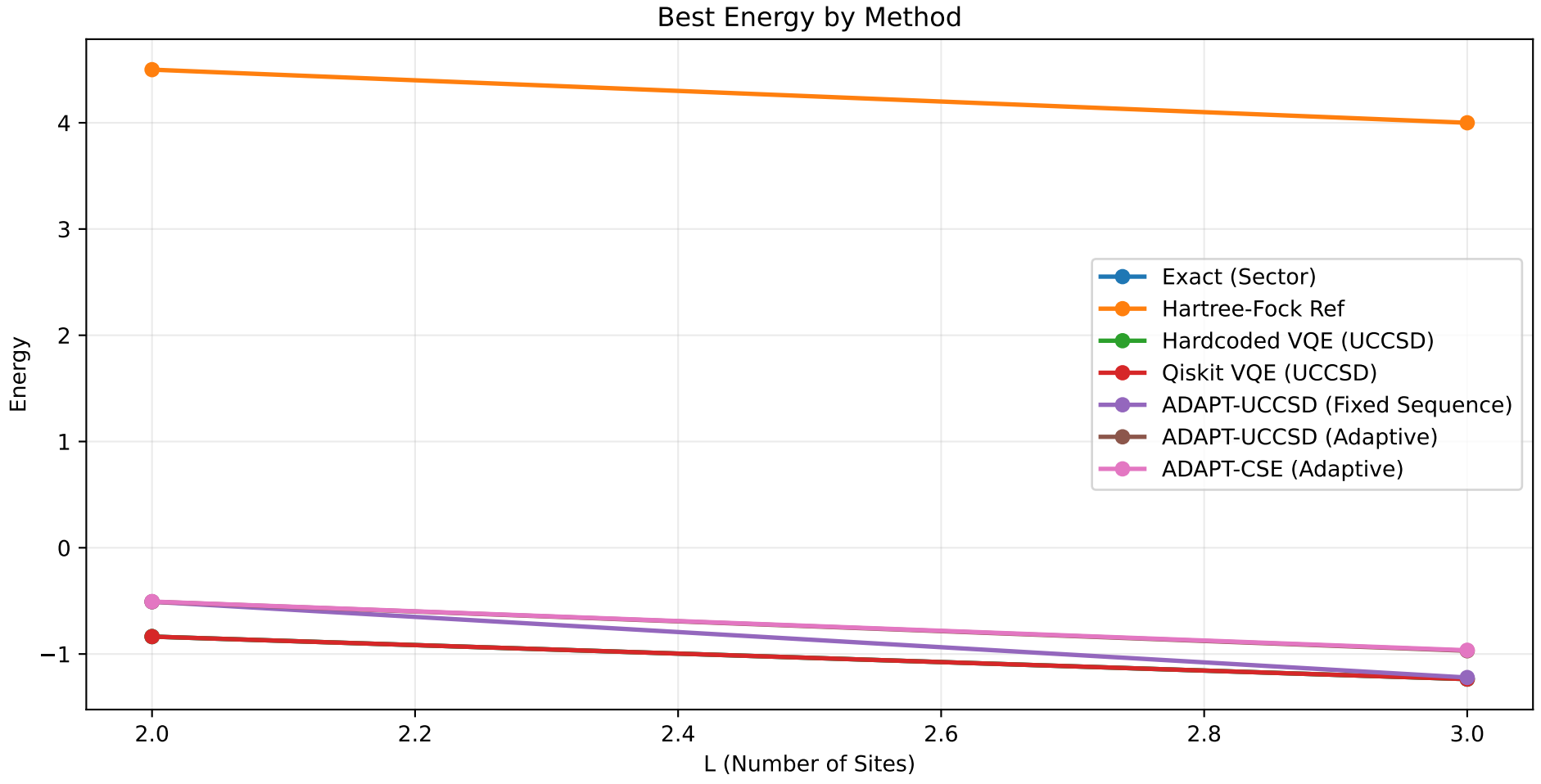
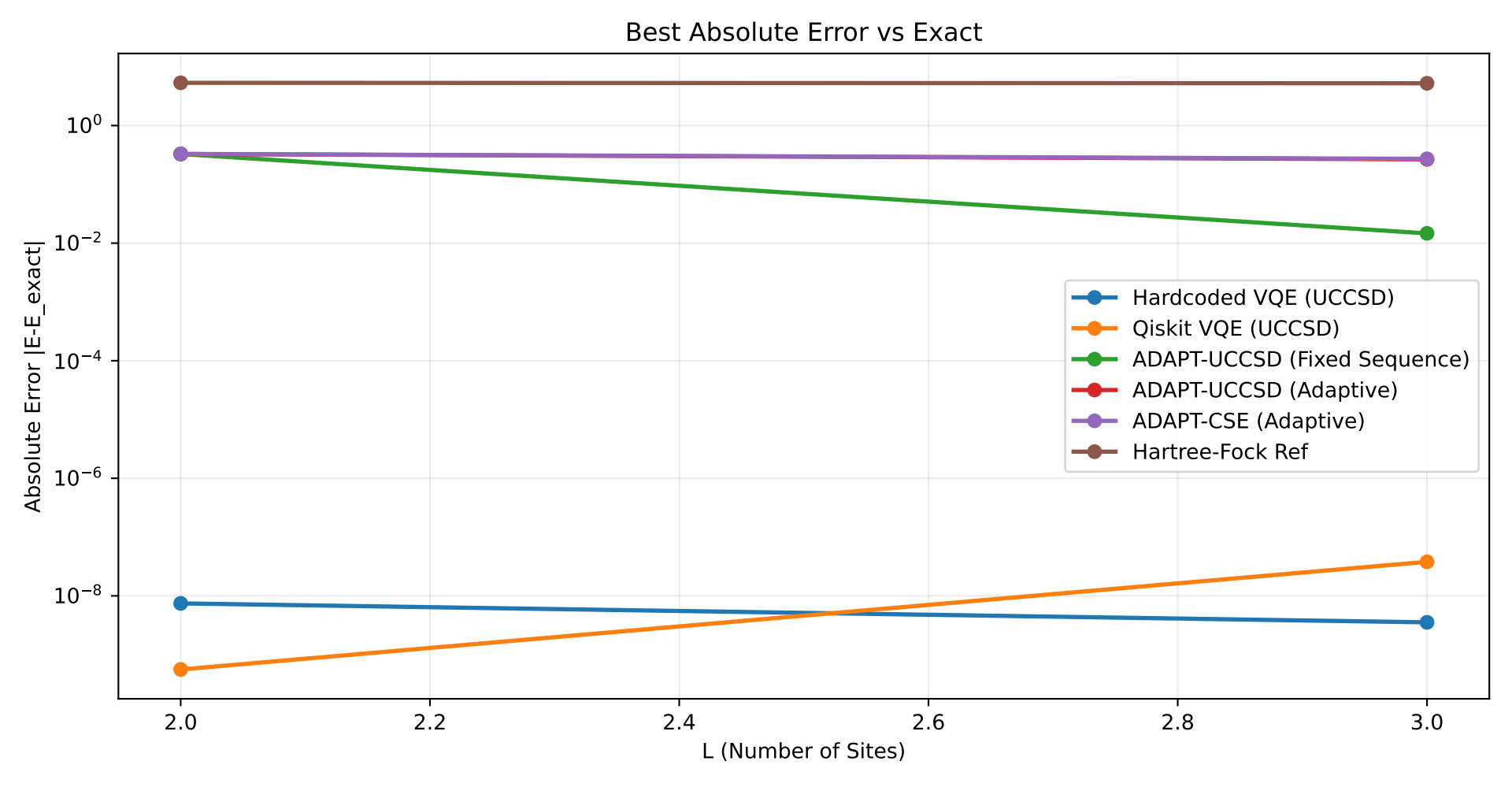
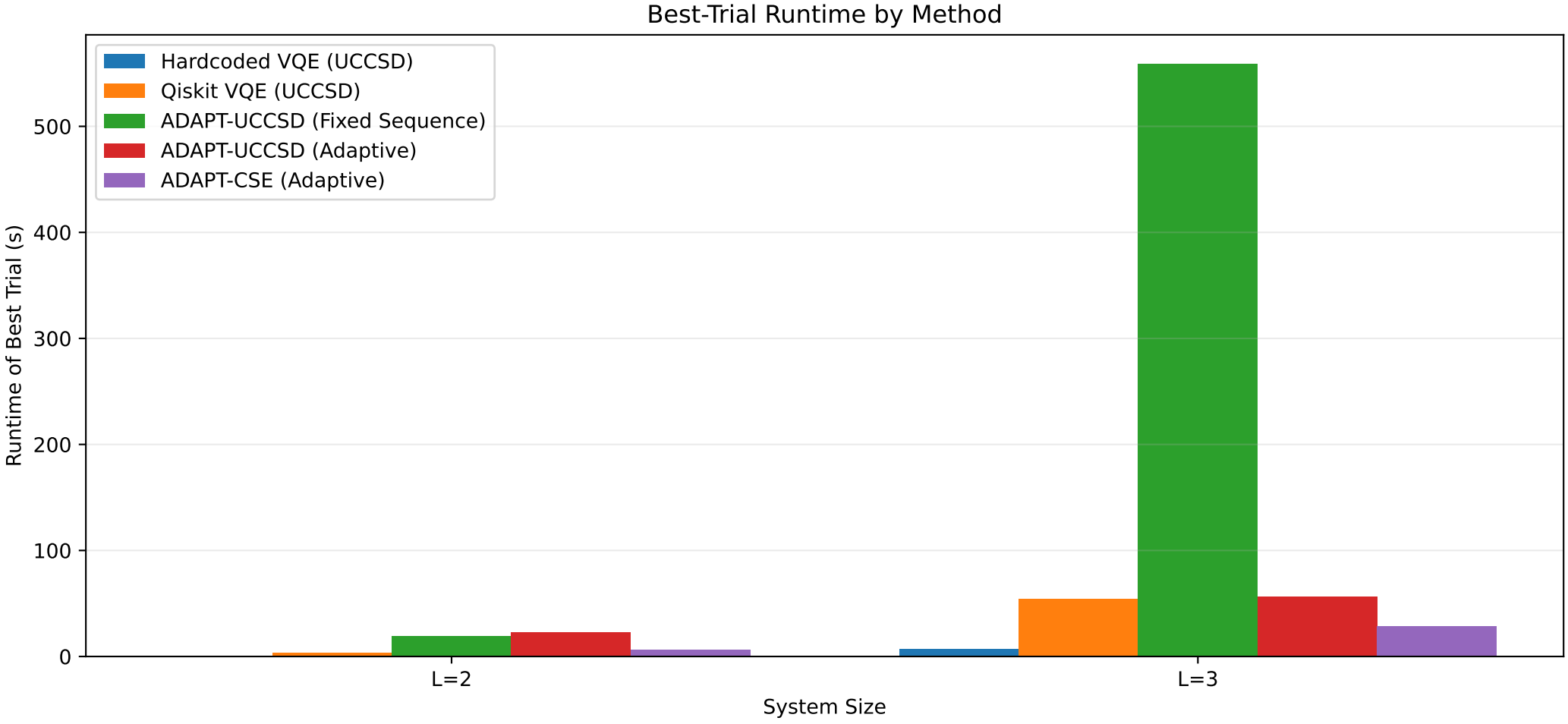
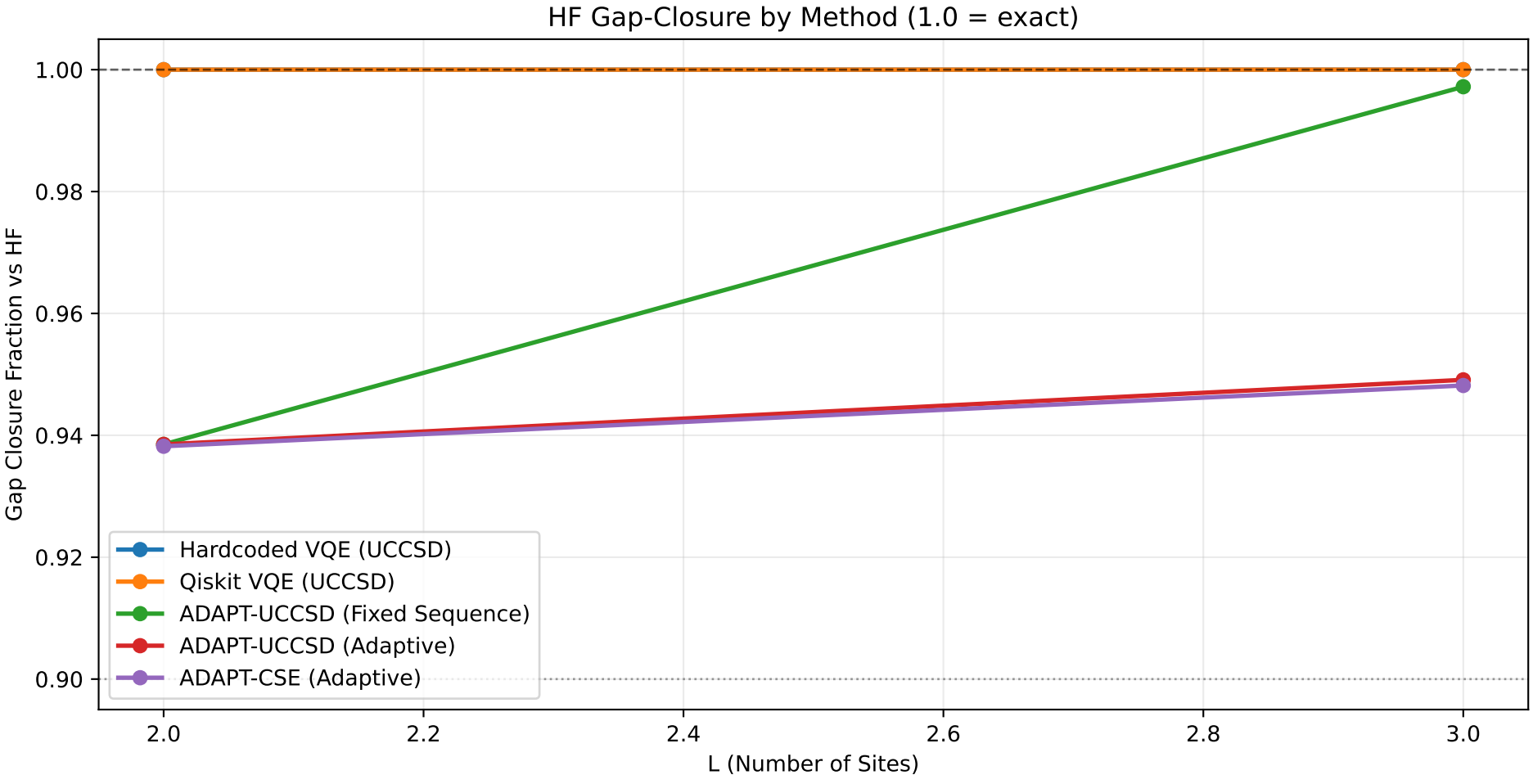
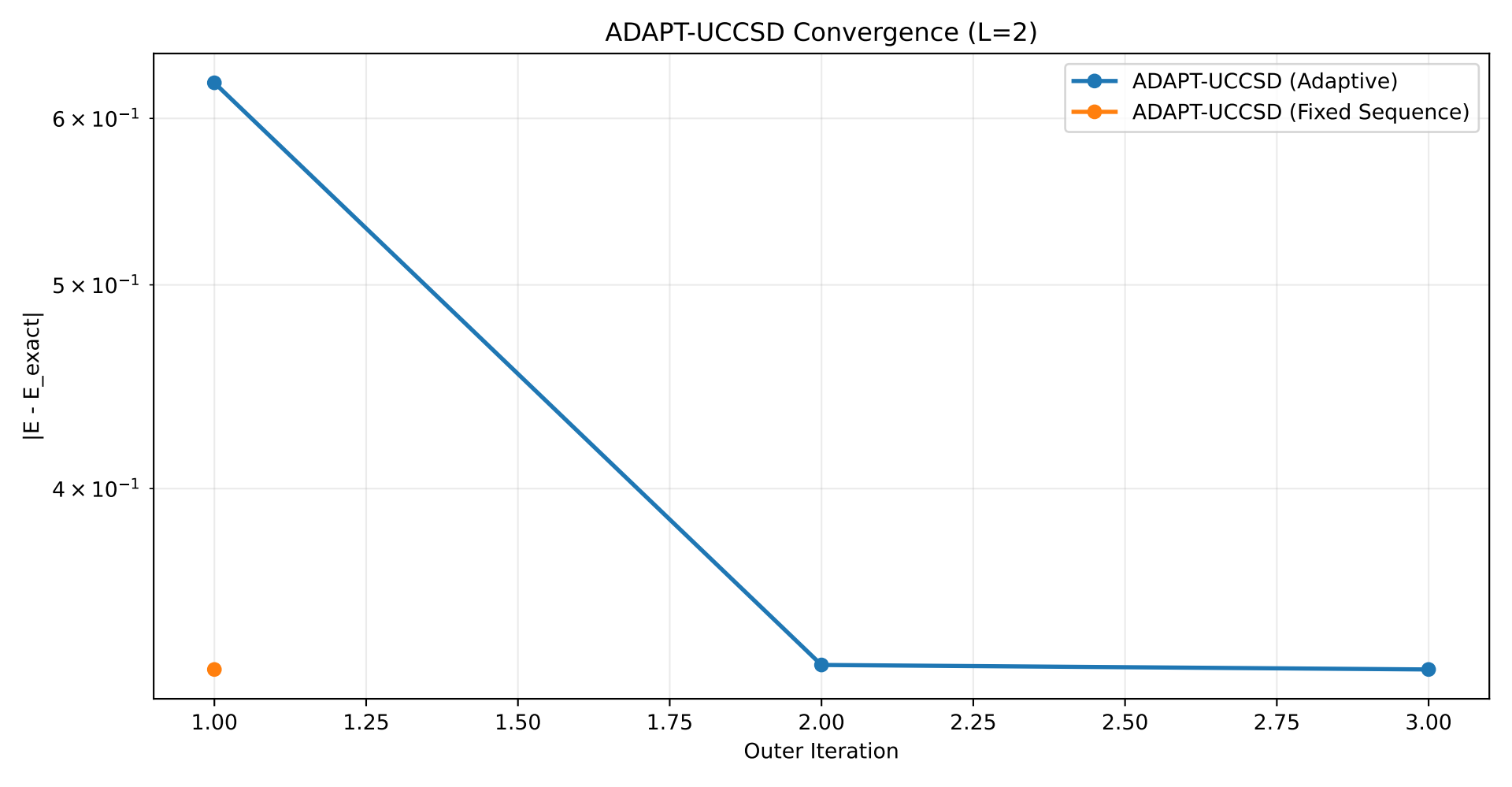
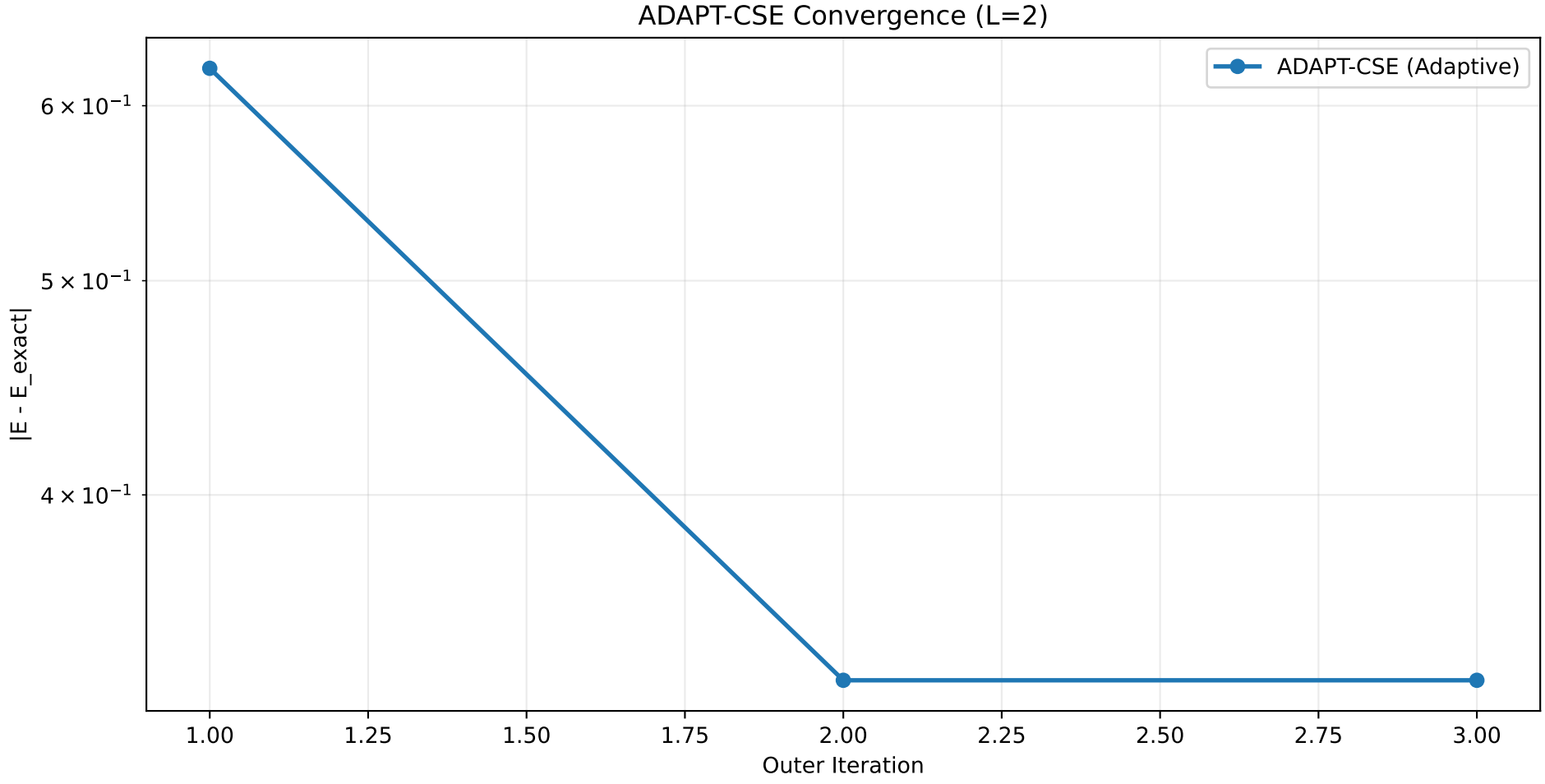

Best Energy by Method
Energy
L (Number of Sites)
4
3
2
1
0
−1
2.0
2.2
2.4
2.6
2.8
3.0
Exact (Sector)
Hartree-Fock Ref
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)

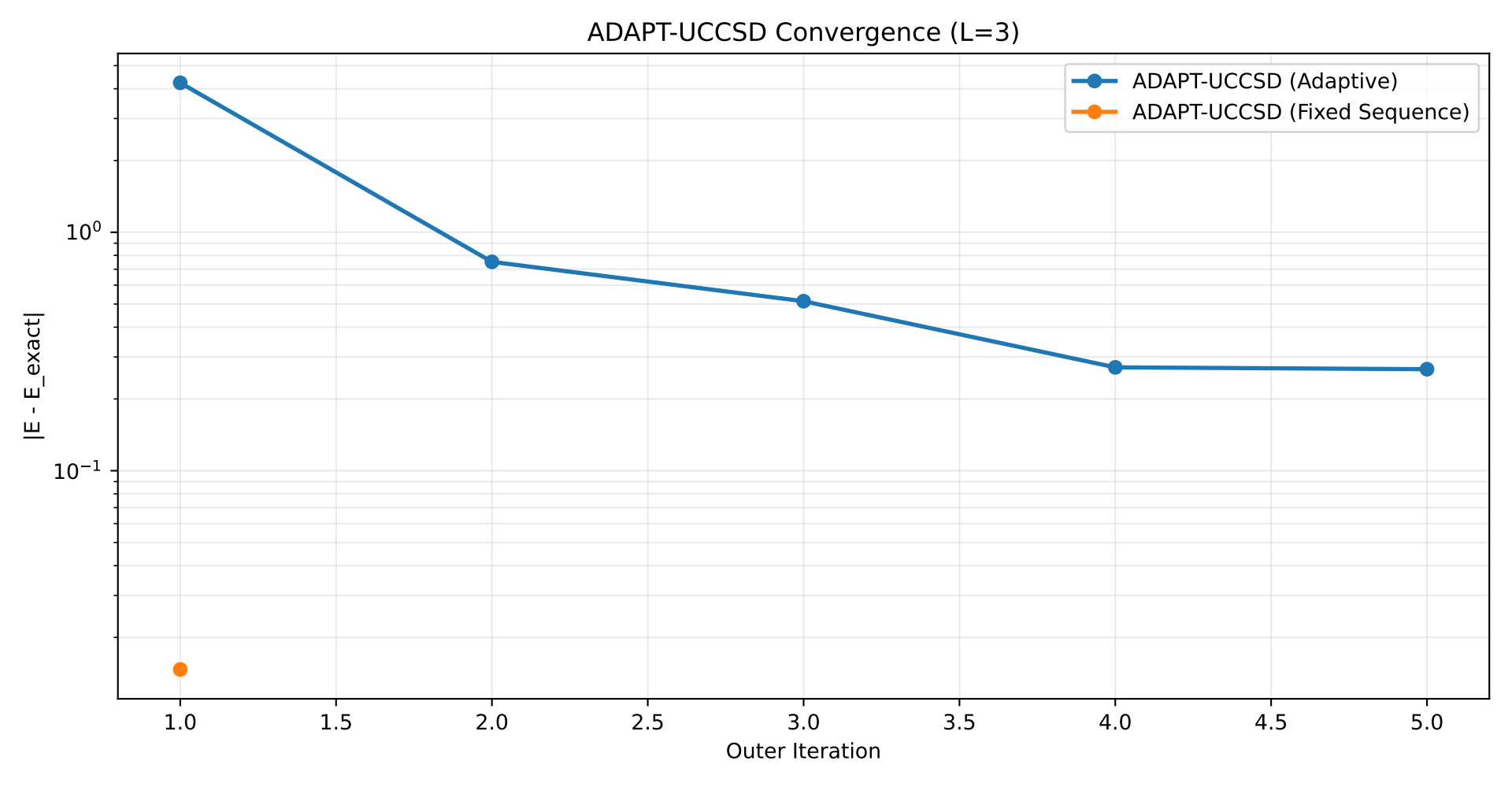

Best Absolute Error vs Exact
Absolute Error |E-E_exact|
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
2.0
2.2
2.4
2.6
2.8
3.0
L (Number of Sites)
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)
Hartree-Fock Ref

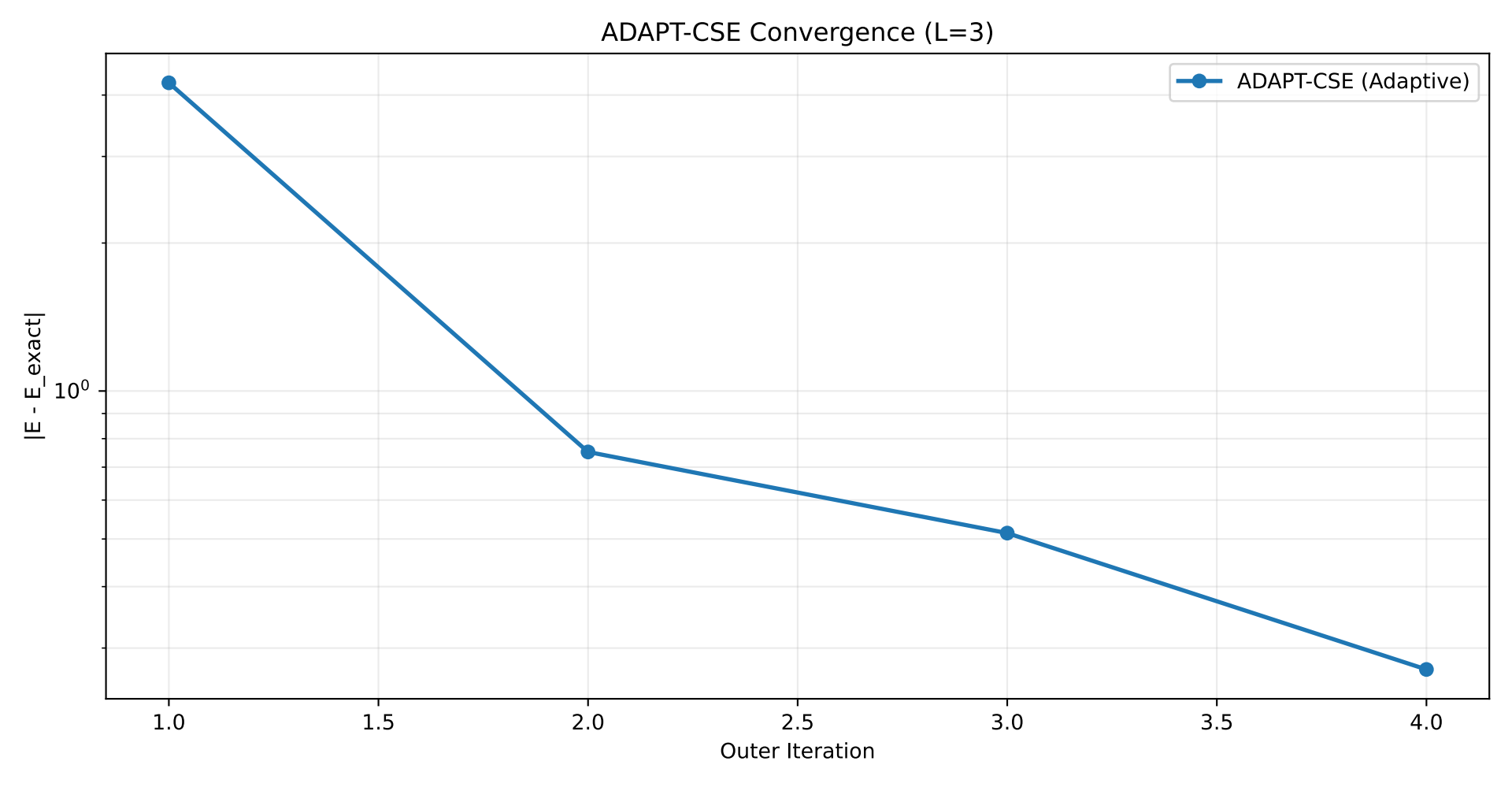

Best-Trial Runtime by Method
Hardcoded VQE (UCCSD)
Qiskit VQE (UCCSD)
ADAPT-UCCSD (Fixed Sequence)
ADAPT-UCCSD (Adaptive)
ADAPT-CSE (Adaptive)
Runtime of Best Trial (s)
0
100
200
300
400
500
L=2
L=3
System Size


HF Gap-Closure by Method (1.0 = exact)
Gap Closure Fraction vs HF
1.00
0.98
0.96
0.94
0.92
0.90
2.0
2.2
2.4
2.6
2.8
3.0
L (Number of Sites)
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}
5×10^{-1}
4×10^{-1}
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
Outer Iteration


ADAPT-CSE Convergence (L=2)
ADAPT-CSE (Adaptive)
|E - E_exact|
6×10^{-1}
5×10^{-1}
4×10^{-1}
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
Outer Iteration


ADAPT-UCCSD Convergence (L=3)
ADAPT-UCCSD (Adaptive)
ADAPT-UCCSD (Fixed Sequence)
|E - E_exact|
10^{0}
10^{-1}
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Outer Iteration


ADAPT-CSE Convergence (L=3)
ADAPT-CSE (Adaptive)
|E - E_exact|
10^0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Outer Iteration