Generated (UTC): 2026-02-21T20:55:38.964471+00:00
Sites: [2, 3] | boundary=open | ordering=blocked | seed=7
Caps: per_method=15.00s, adapt_trial=3.00s, adapt_fixed_trial=4.00s
Gates: VQE(L2<=1.0e-08, L3<=1.0e-06) | UCCSD-fixed(L2<=1.0e-08, L3<=1.0e-06) | UCCSD-adapt(L2<=1.0e-07, L3<=1.0e-05) | CSE(gap>=0.90)
Warnings: L=2 adapt_uccsd_fixed: stopped due to budget:max_time_s. | L=2 adapt_uccsd_adapt: best runtime 17.67s exceeds cap 15.00s. | L=2 adapt_uccsd_adapt: stopped

PASS/FAIL Matrix (Method x L)

Method	L=2	L=3
Hardcoded VQE (UCCSD)	FAIL\n|dE|=1.734e-08 <= 1.000e-08\nreason=tol	PASS\n|dE|=3.547e-09 <= 1.000e-06\nreason=ok
Qiskit VQE (UCCSD)	PASS\n|dE|=5.600e-10 <= 1.000e-08\nreason=ok	PASS\n|dE|=3.795e-08 <= 1.000e-06\nreason=ok
ADAPT-UCCSD (Fixed Sequence)	FAIL\n|dE|=3.281e-01 <= 1.000e-08\nreason=timeout/cap	FAIL\n|dE|=1.467e-02 <= 1.000e-06\nreason=timeout/cap
ADAPT-UCCSD (Adaptive)	FAIL\n|dE|=3.281e-01 <= 1.000e-08\nreason=timeout/cap	FAIL\n|dE|=7.516e-01 <= 1.000e-05\nreason=timeout/cap
ADAPT-CSE (Adaptive)	PASS\ngap=0.938 >= 0.90\nreason=ok	FAIL\ngap=0.856 >= 0.90\nreason=timeout/cap
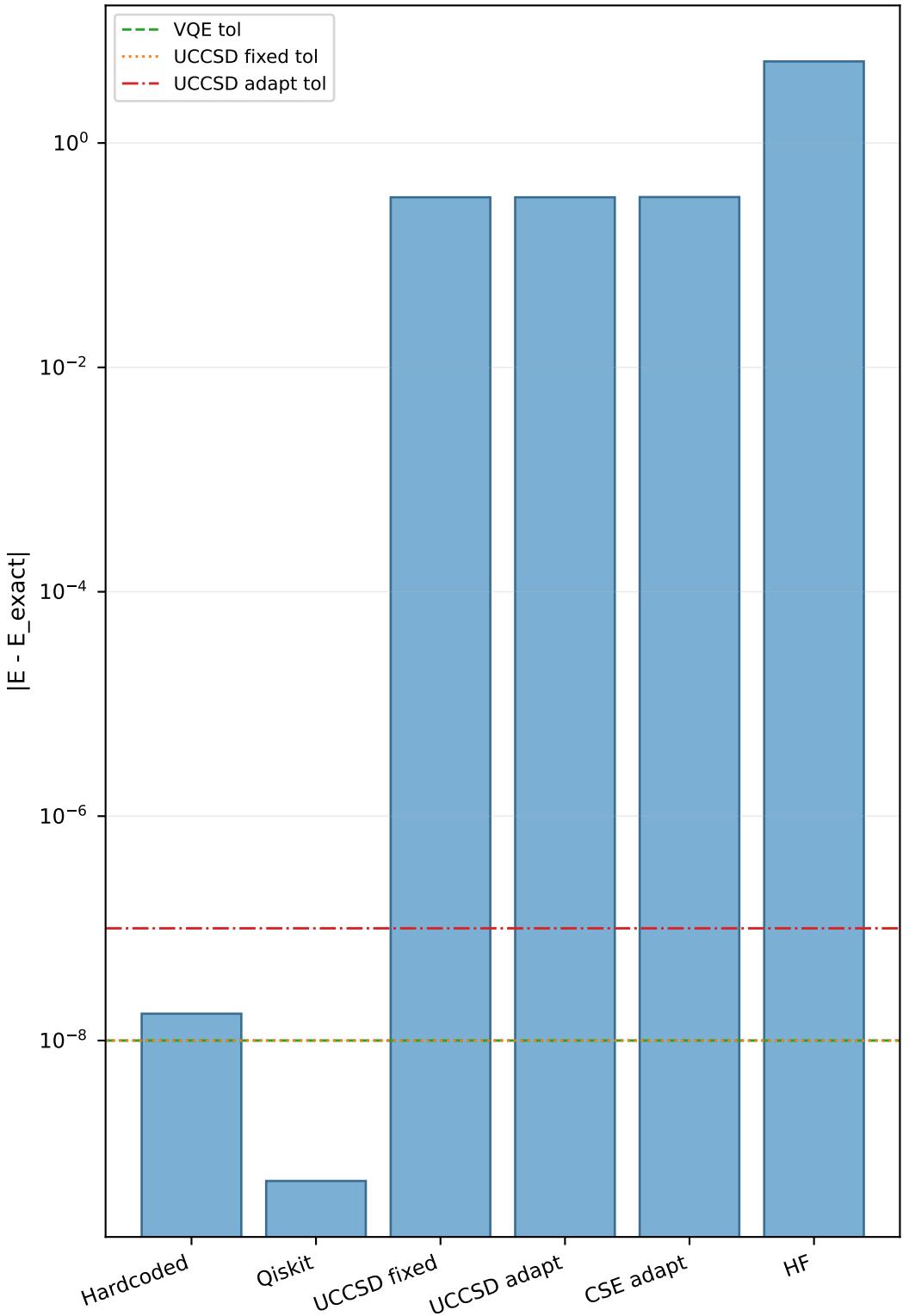
L=2 Best Results
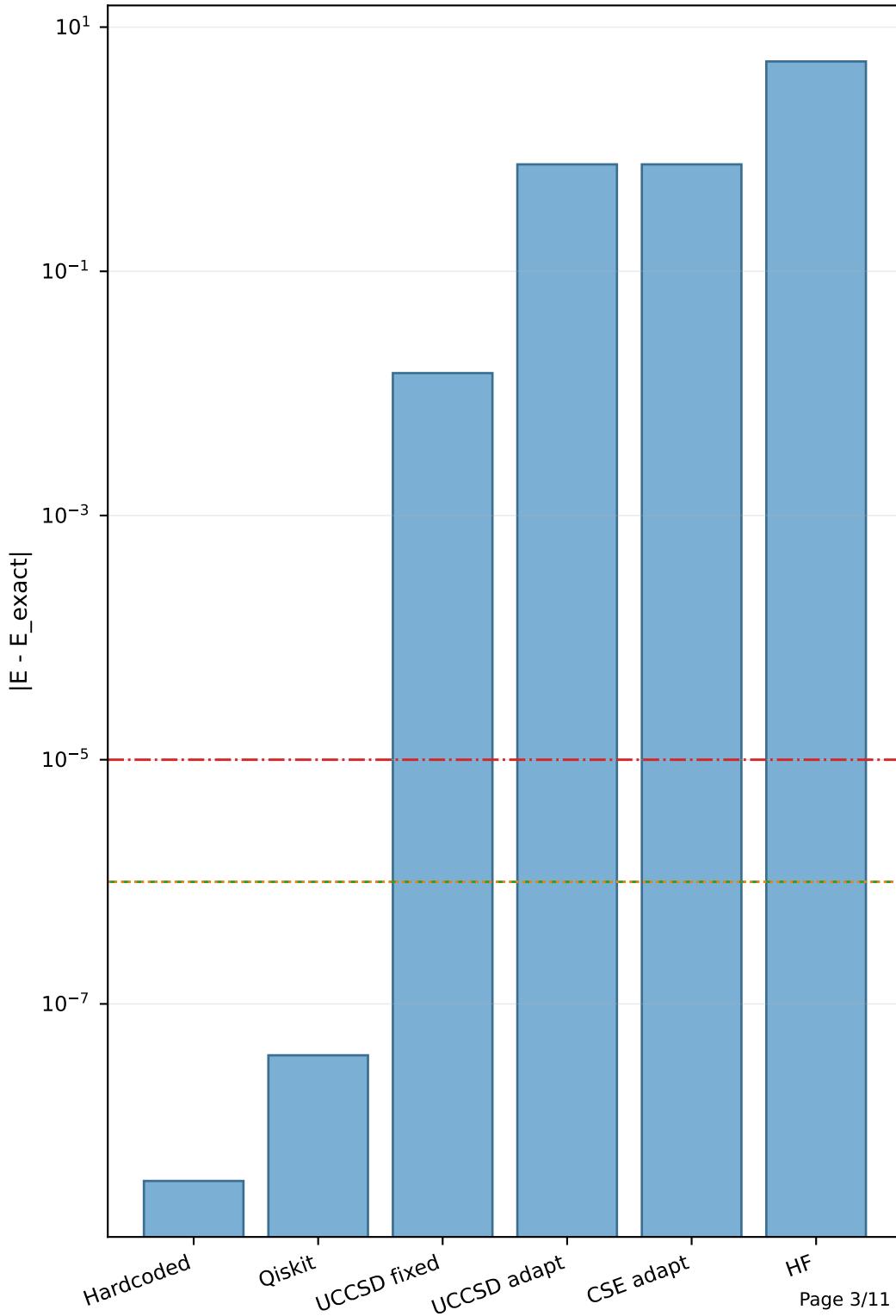
Method	E_best	|dE|	gap	Runtime	Gate	Reason
Exact	-1.9260657	1.000e+	NA	0.00	PASS	reference
Hart	-4.5070000	3.336e+	0.000	0.00	PASS	reference
Hardcoded VQE	-1.9260571	1.734e-0	1.000	0.10	FAIL	tol
Qiskit VQE	-1.9260575	5.600e-1	1.000	1.88	PASS	ok
ADAPT-UCCSD (Fixed)	-1.5079365	3.281e-0	0.939	8.40	FAIL	timeout/cap
ADAPT-UCCSD	-1.5079365	3.281e-0	0.939	17.67	FAIL	timeout/cap
ADAPT-CSE	-1.9063129	1.297e-0	0.938	2.91	PASS	ok

L=3 Best Results

Method	E_best	|dE|	gap	Runtime	Gate	Reason
Exact	-1.9260679	1.000e+	NA	0.00	PASS	reference
Hart	-4.0070000	6.236e+	0.000	0.00	PASS	reference
Hardcoded VQE	-1.9260679	3.547e-0	1.000	4.40	PASS	ok
Qiskit VQE	-1.9260679	3.795e-0	1.000	49.63	PASS	ok
ADAPT-UCCSD (Fixed)	-1.2213991	1.467e-0	0.997	367.00	FAIL	timeout/cap
ADAPT-UCCSD	-0.9844353	7.516e-0	0.856	3.75	FAIL	timeout/cap
ADAPT-CSE	-0.9844353	7.516e-0	0.856	3.37	FAIL	timeout/cap
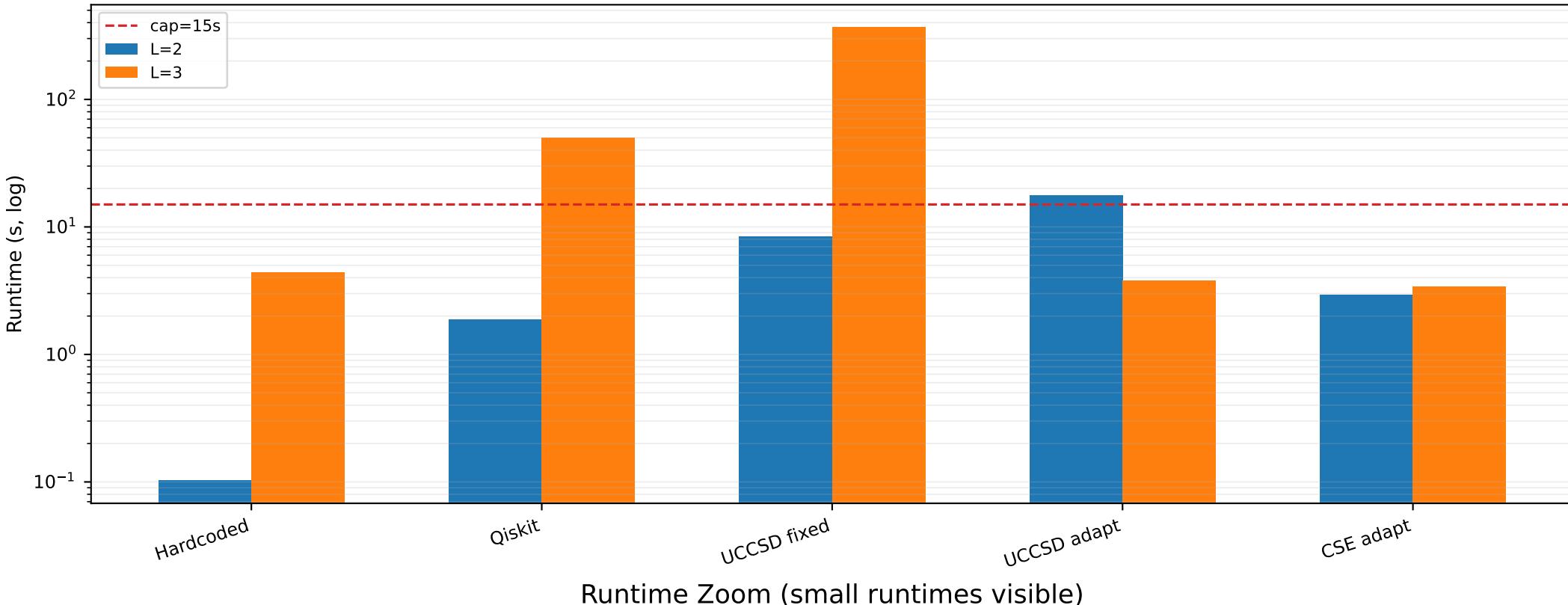
| L	Method	E_best	|dE|	gap	Runtime(s)	Gate	Reason
L=2	Hardcoded VQE (UCCSD)	-0.836057100816	1.734e-08	1.000	0.10	FAIL	tol
L=2	Qiskit VQE (UCCSD)	-0.836057117595	5.600e-10	1.000	1.88	PASS	ok
L=2	ADAPT-UCCSD (Fixed Sequen	-0.507936507927	3.281e-01	0.939	8.40	FAIL	timeout/cap
L=2	ADAPT-UCCSD (Adaptive)	-0.507936507936	3.281e-01	0.939	17.67	FAIL	timeout/cap
L=2	ADAPT-CSE (Adaptive)	-0.506312970694	3.297e-01	0.938	2.91	PASS	ok
L=3	Hardcoded VQE (UCCSD)	-1.236067973953	3.547e-09	1.000	4.40	PASS	ok
L=3	Qiskit VQE (UCCSD)	-1.236067939546	3.795e-08	1.000	49.63	PASS	ok
L=3	ADAPT-UCCSD (Fixed Sequen	-1.221399776886	1.467e-02	0.997	367.00	FAIL	timeout/cap
L=3	ADAPT-UCCSD (Adaptive)	-0.484435331766	7.516e-01	0.856	3.75	FAIL	timeout/cap
L=3	ADAPT-CSE (Adaptive)	-0.484435331759	7.516e-01	0.856	3.37	FAIL	timeout/cap

L=2 Absolute Error
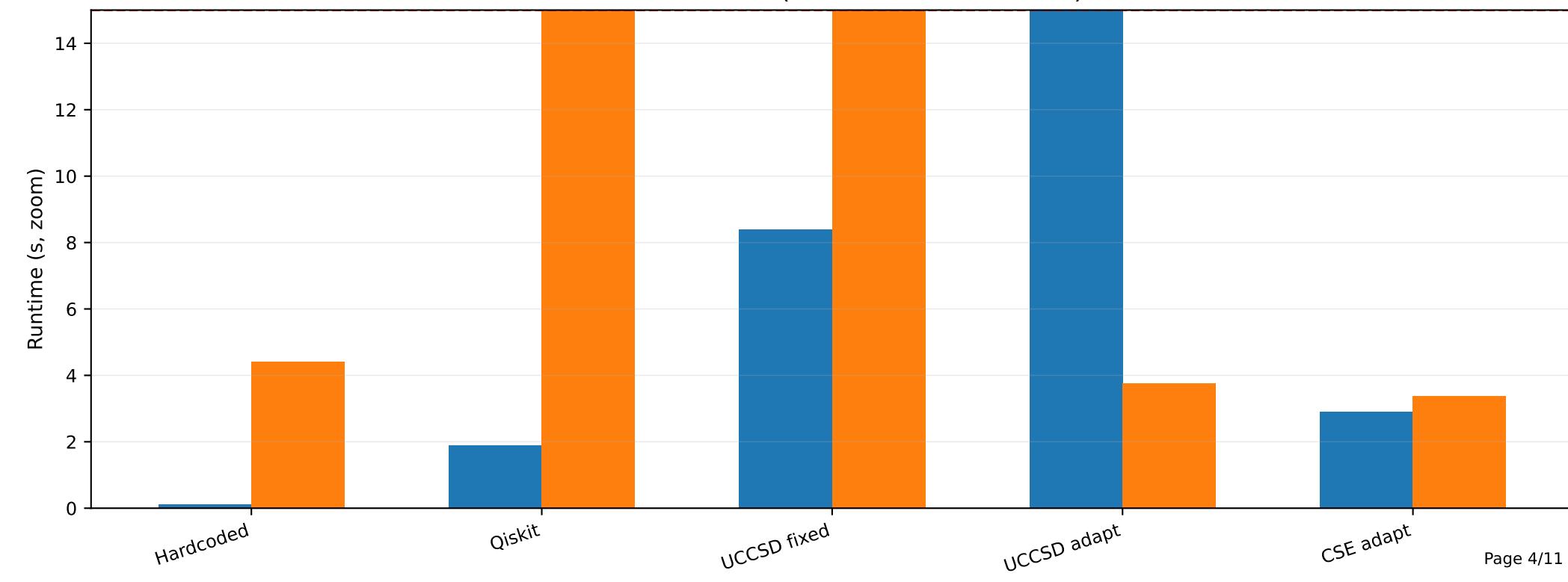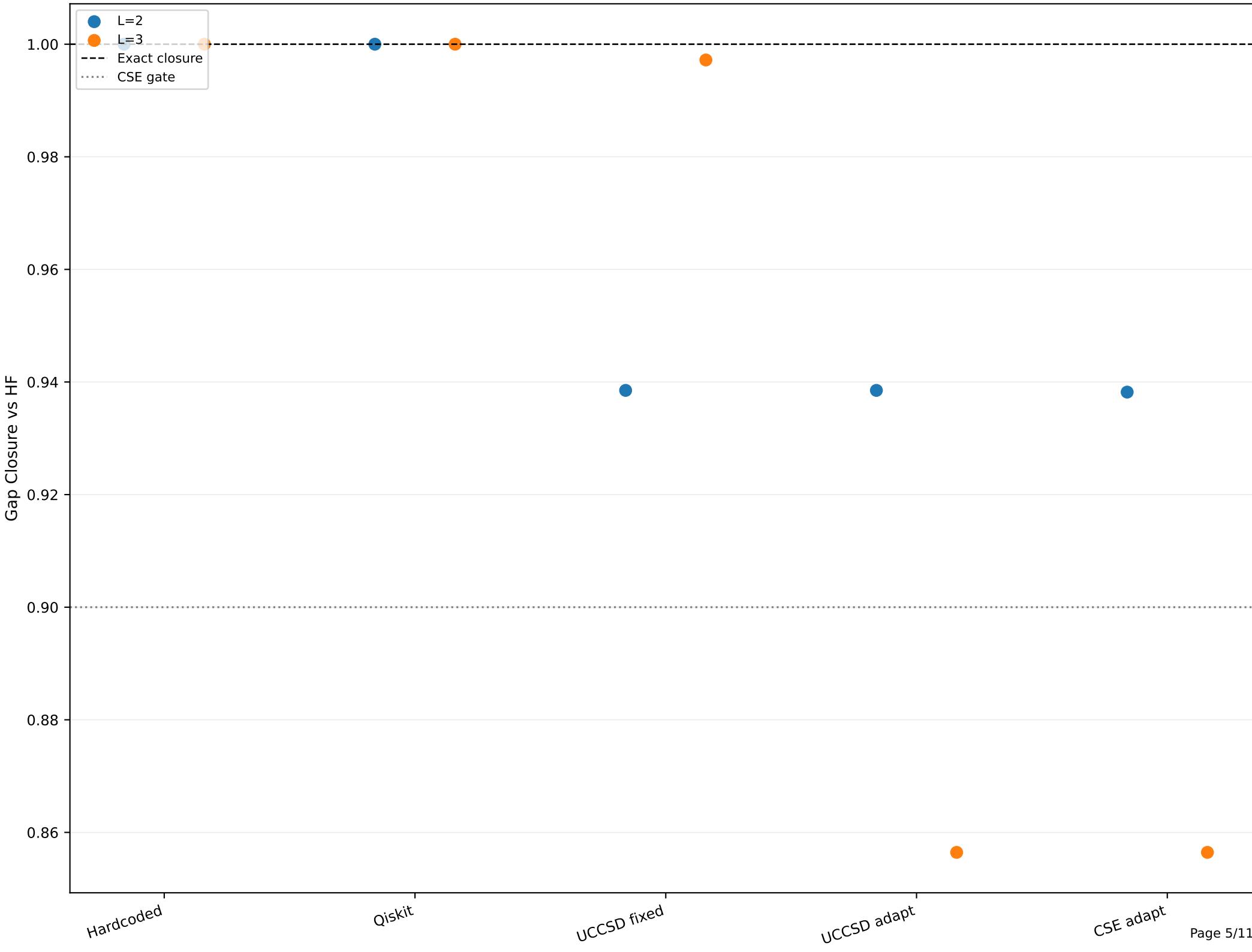
L=3 Absolute Error

Runtime by Method (All Scales)
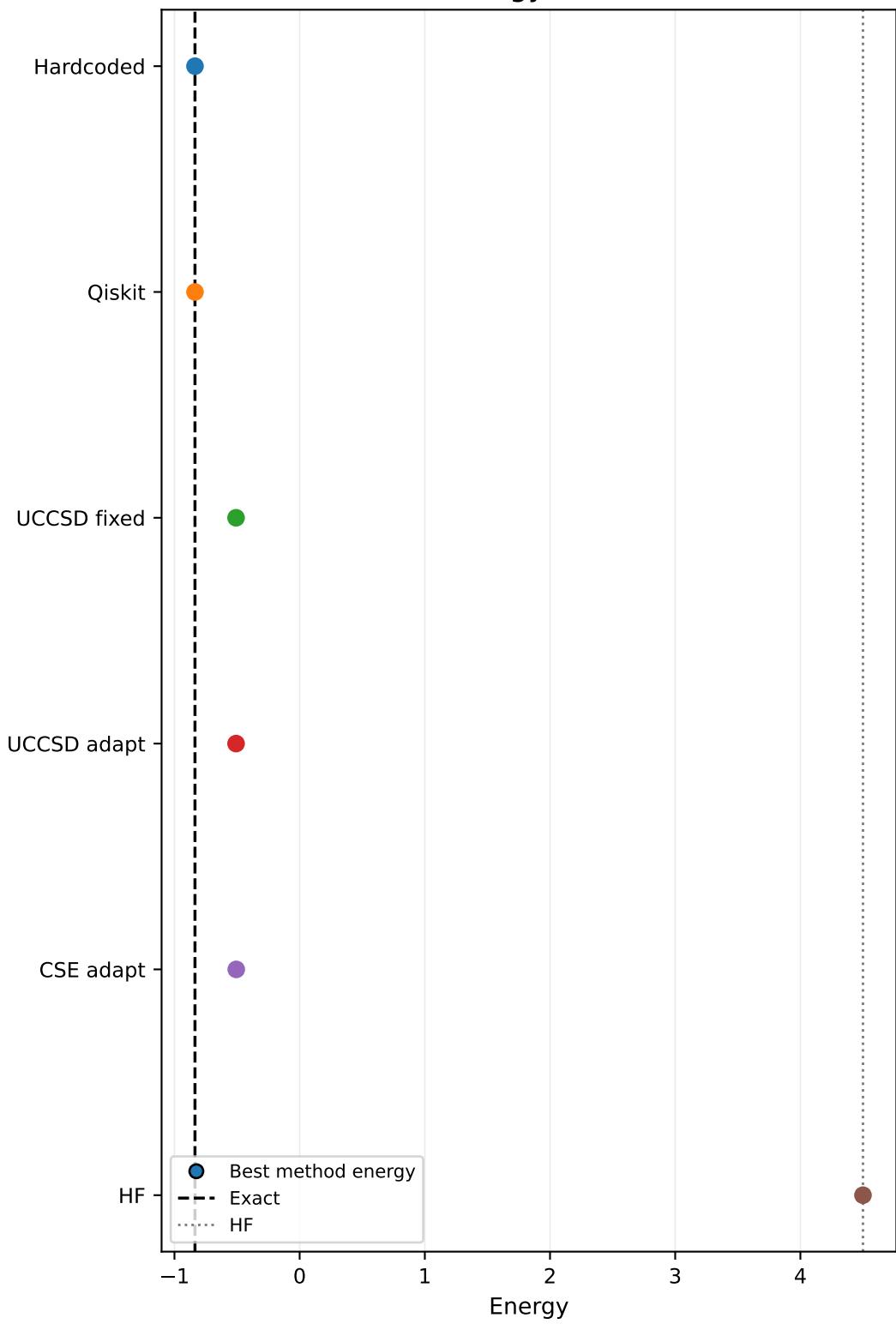
Runtime Zoom (small runtimes visible)

Gap Closure by Method

Legend:
- L=2
- L=3
- Exact closure
- CSE gate

Y-axis: Gap Closure vs HF

X-axis categories: Hardcoded, Qiskit, UCCSD fixed, UCCSD adapt, CSE adapt
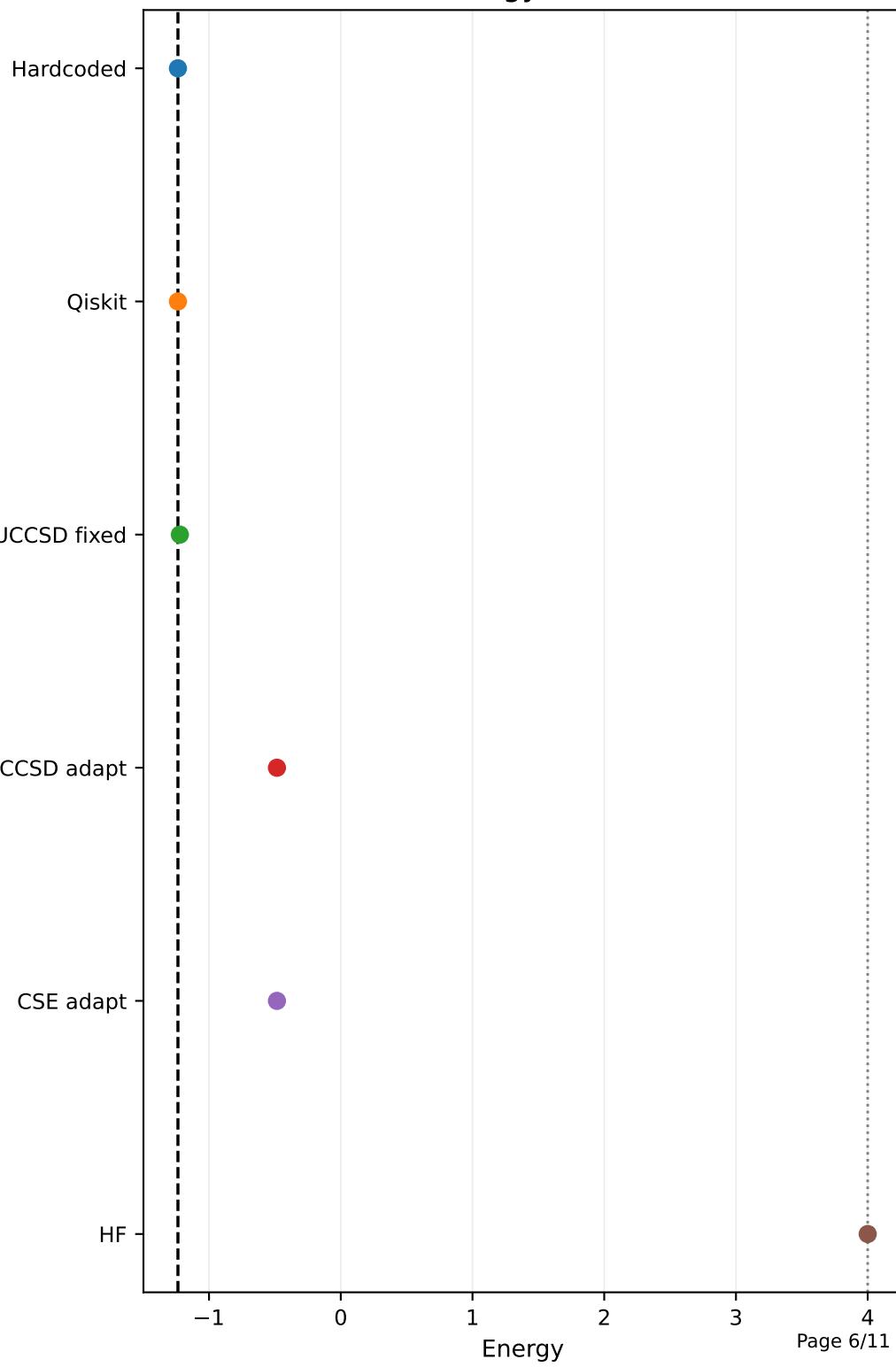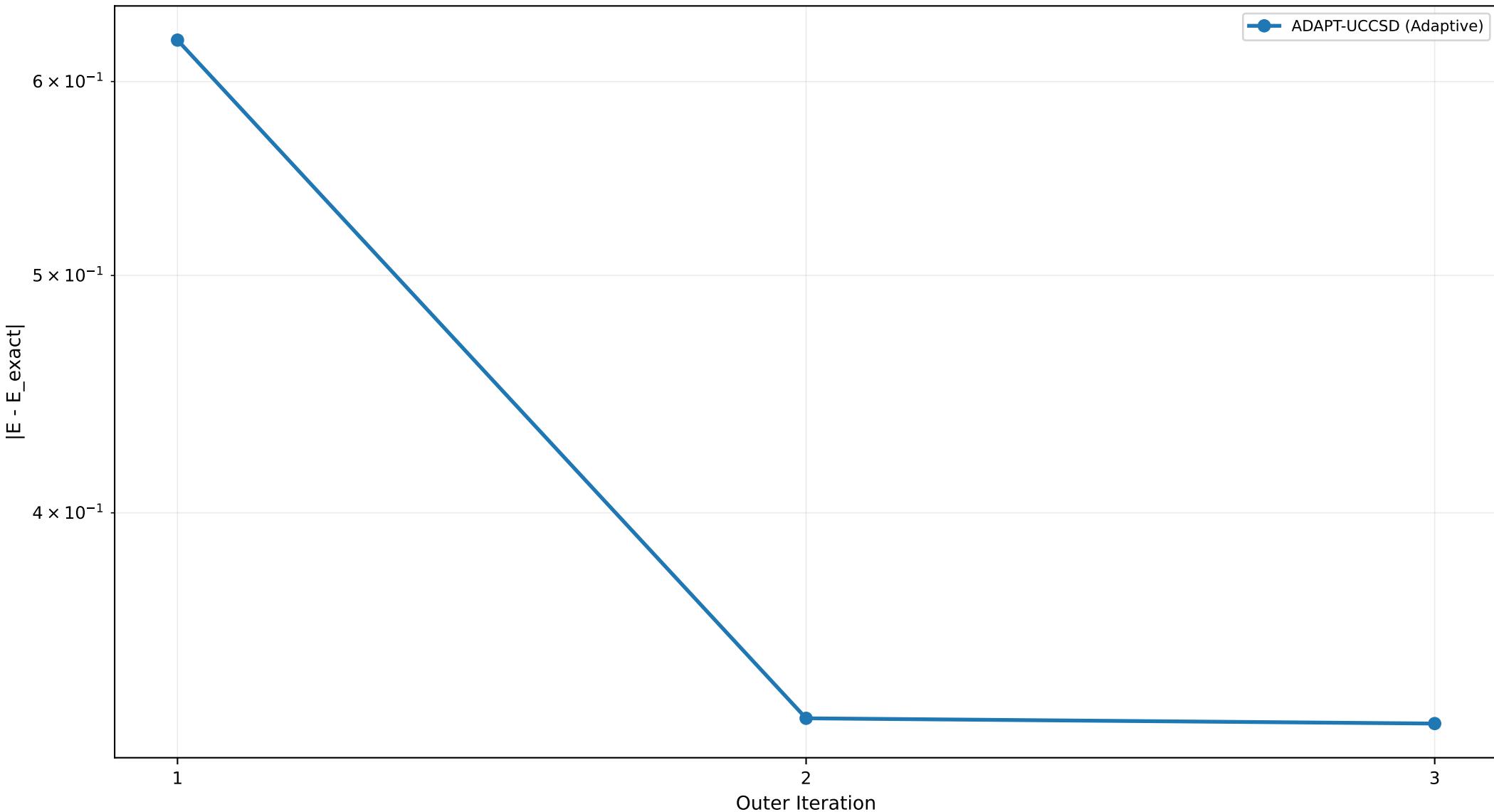
L=2 Energy Positions

L=3 Energy Positions

Legend:
- Best method energy
- Exact
- HF

ADAPT-UCCSD Convergence (L=2)
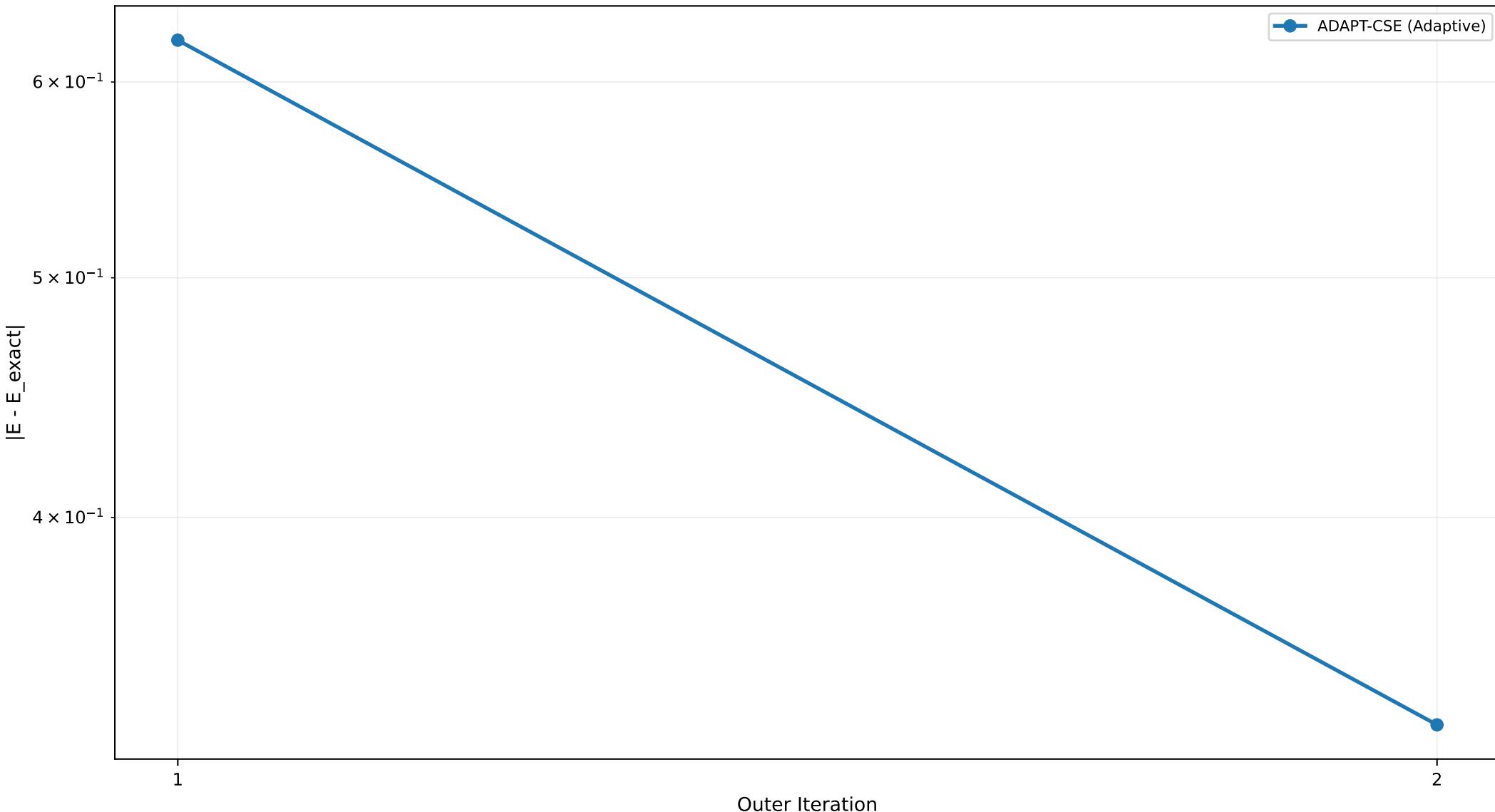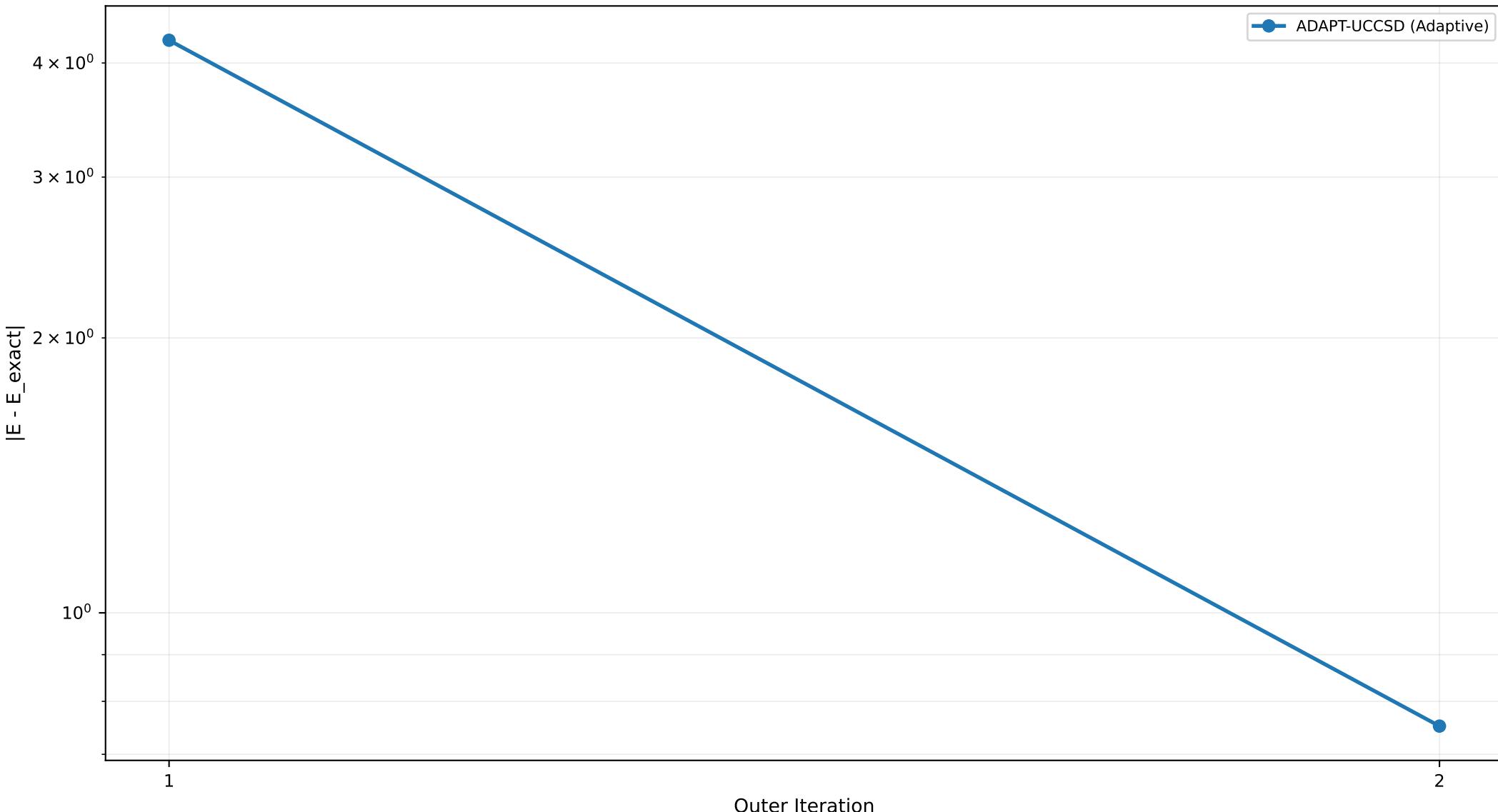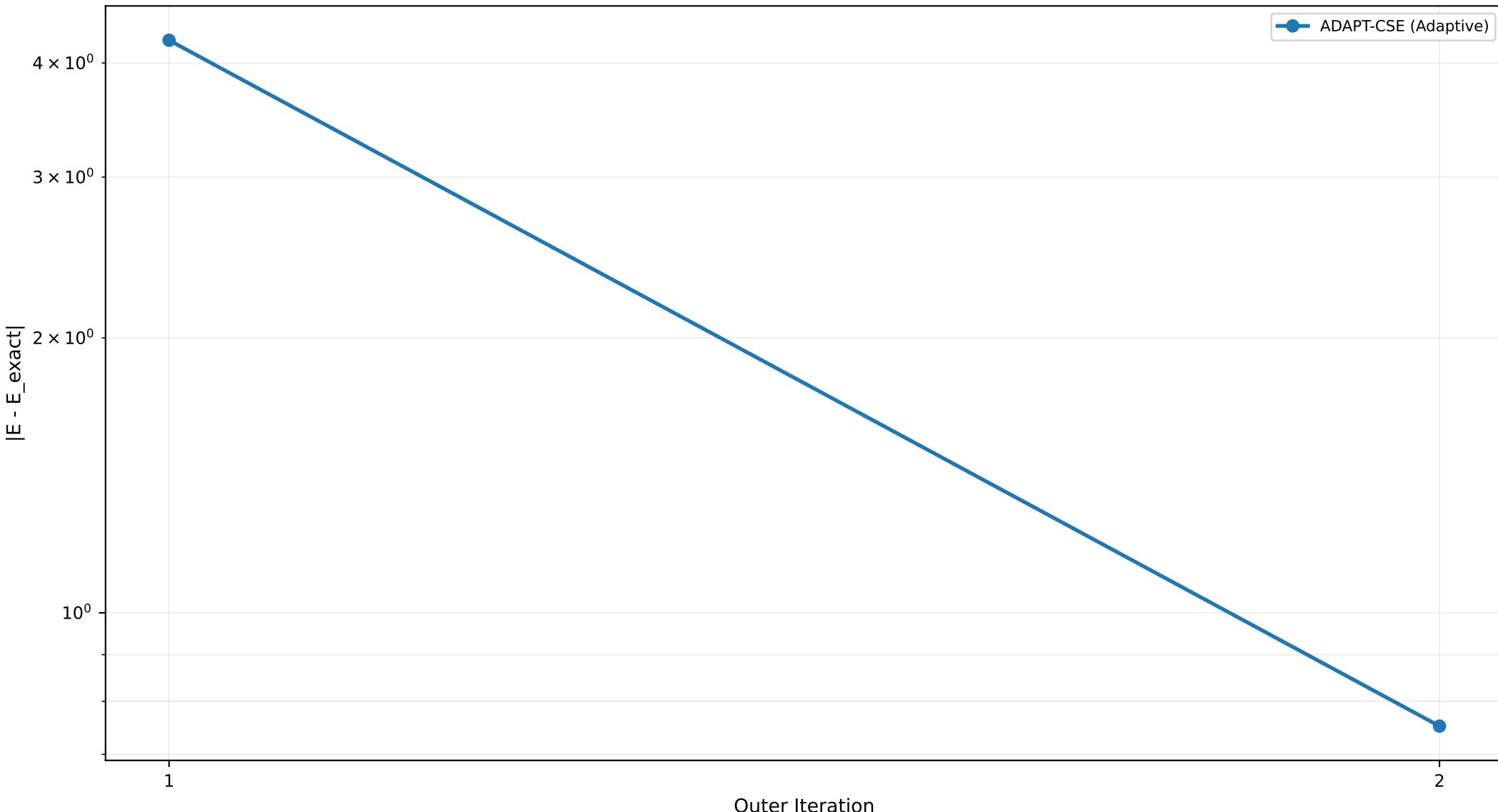
Method	N_iter	Final |dE|	Runtime(s)	Stop/Note
ADAPT-UCCSD (Fixed Sequence)	1	3.281e-01	8.40	stopped after 1 iteration; stop=budget:max_

ADAPT-CSE Convergence (L=2)

Method	N_iter	Final |dE|	Runtime(s)	Stop/Note
ADAPT-CSE (Adaptive)	2	3.297e-01	2.91	stop=eps_grad

Method	N_iter	Final |dE|	Runtime(s)	Stop/Note
ADAPT-UCCSD (Fixed Sequence)	1	1.467e-02	367.00	stopped after 1 iteration; stop=budget:max_

ADAPT-CSE Convergence (L=3)

Method	N_iter	Final |dE|	Runtime(s)	Stop/Note
ADAPT-CSE (Adaptive)	2	7.516e-01	3.37	stop=budget:max_time_s

L	Method	E_best	|dE|	gap	Runtime(s)
L=2	Hardcoded	-0.836057100816	1.734e-08	1.000	0.10
L=2	Qiskit	-0.836057117595	5.600e-10	1.000	1.88
L=2	UCCSD fixed	-0.507936507927	3.281e-01	0.939	8.40
L=2	UCCSD adapt	-0.507936507936	3.281e-01	0.939	17.67
L=2	CSE adapt	-0.506312970694	3.297e-01	0.938	2.91
L=3	Hardcoded	-1.236067973953	3.547e-09	1.000	4.40
L=3	Qiskit	-1.236067939546	3.795e-08	1.000	49.63
L=3	UCCSD fixed	-1.221399776886	1.467e-02	0.997	367.00
L=3	UCCSD adapt	-0.484435331766	7.516e-01	0.856	3.75
L=3	CSE adapt	-0.484435331759	7.516e-01	0.856	3.37

Appendix: Warnings

- L=2 adapt_uccsd_fixed: stopped due to budget:max_time_s.
- L=2 adapt_uccsd_adapt: best runtime 17.67s exceeds cap 15.00s.
- L=2 adapt_uccsd_adapt: stopped due to budget:max_time_s.
- L=3 qiskit_vqe: best runtime 49.63s exceeds cap 15.00s.
- L=3 adapt_uccsd_fixed: best runtime 367.00s exceeds cap 15.00s.
- L=3 adapt_uccsd_fixed: stopped due to budget:max_time_s.
- L=3 adapt_uccsd_adapt: stopped due to budget:max_time_s.
- L=3 adapt_cse_adapt: stopped due to budget:max_time_s.