$N_2$  (6-31g, 10e, 16o) R=1.2 Å / all-to-all R=1.2 Å / heavy-hex R=2.4 Å / all-to-allR=2.4 Å / heavy-hexEnergy error (Hartree) (Hartree error (Hartree  $10^{0}$  $10^{0}$  $10^{-1}$  $10^{-1}$  $10^{-1}$  $10^{-1}$ Energy 6  $10^{-2}$ 10-2 Energy  $10^{-2}$ Energy 8 9 10 8 9 10 8 9 10 Repetitions Repetitions Repetitions Repetitions SSO 10<sup>-3</sup> 10<sup>-4</sup> Operator 10<sup>-2</sup> Operator loss Operator loss  $10^{-1}$  $10^{-1}$  $10^{-2}$  $10^{-2}$  $10^{-3}$ 10<sup>-3</sup>  $10^{-4}$ 5 6 5 Repetitions Repetitions Repetitions Repetitions UCCSD UCCSD-compressed t2 LUCI-compressed LUCJ-compressed-fp LUCJ-truncated LUCJ-full LUCJ-compressed-1stg