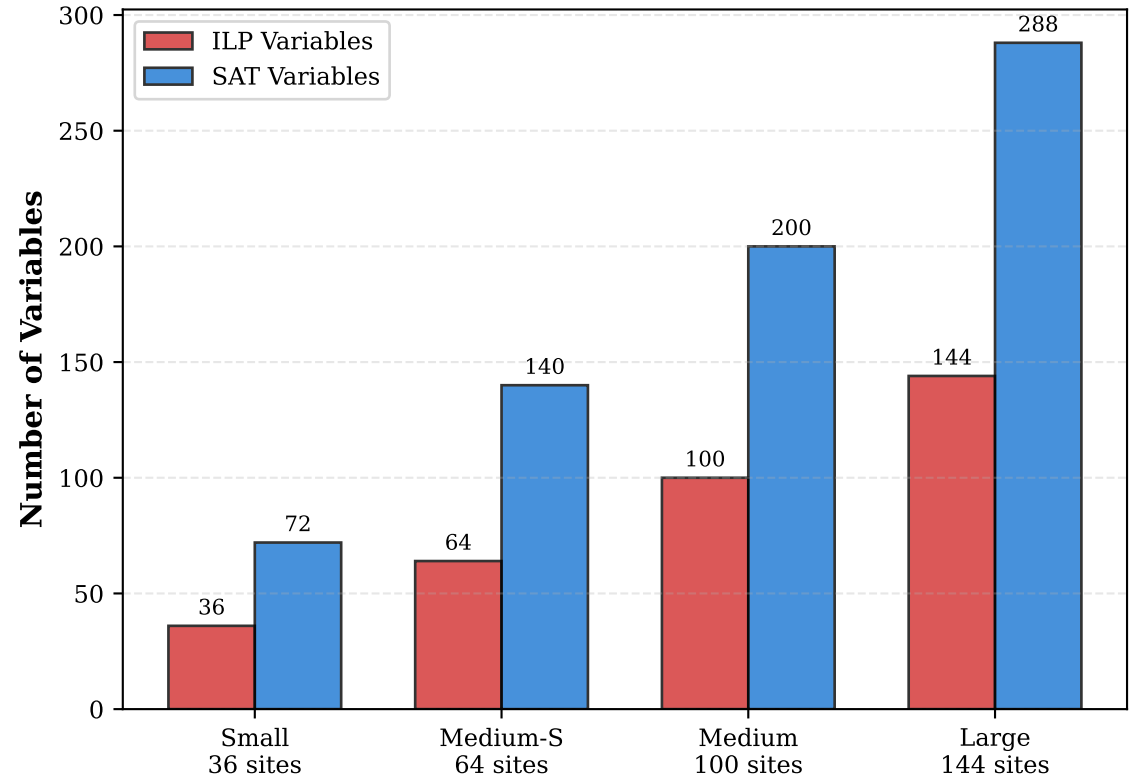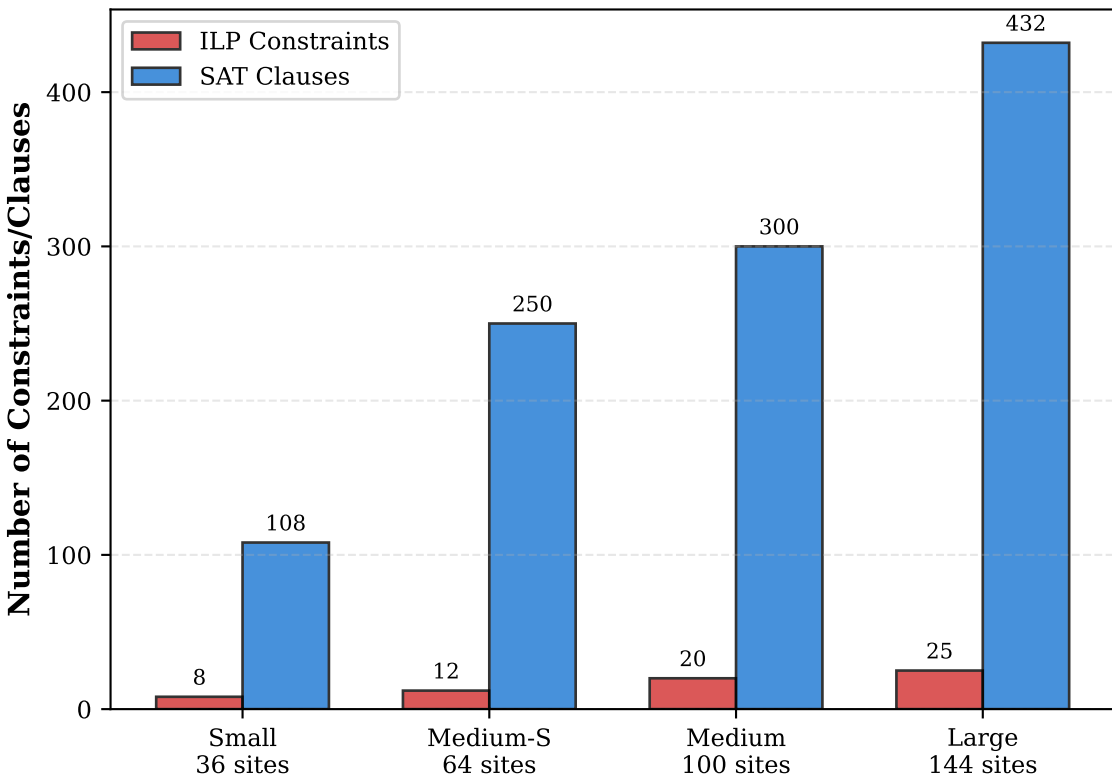# Original ILP vs SAT Formulation Comparison
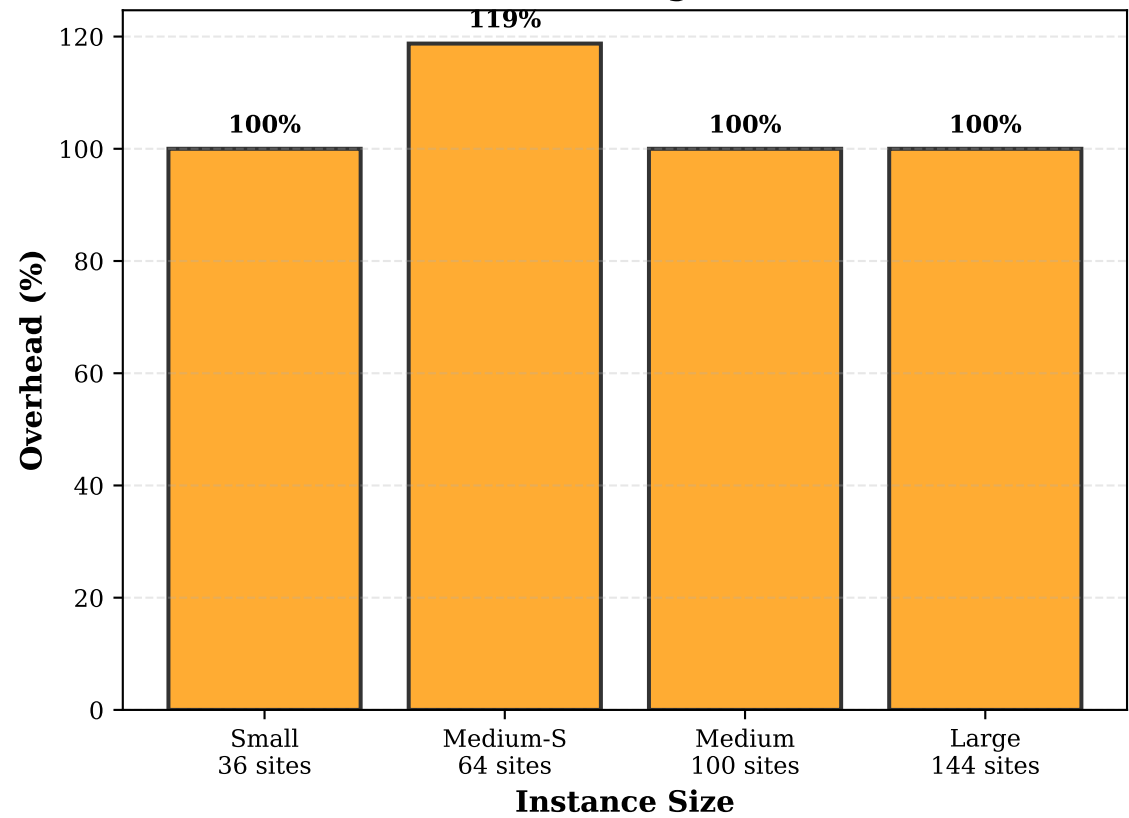
(a) Problem Size: Variables

(b) Problem Size: Constraints

(c) SAT Encoding Overhead

(d) Formulation Comparison

Feature	ILP/CP	SAT (CNF)
Variable Type	Integer/Binary	Boolean
Constraint Type	Linear/Logical	Clauses (CNF)
Solver Efficiency	Good (small)	Excellent (all)
Quantum Ready	Limited	QAOA-ready
Encoding Loss	None	None (proven)
Scalability	Moderate	High
Hardware Support	CPU/GPU	CPU/GPU/QPU