## Quantum Resource Scaling: Angle vs Amplitude Encoding (TwoLocal Ansatz with 2 repetitions)

| K (features) | Angle Qubits | Amplitude Qubits | Angle Ansatz Params | Amplitude Ansatz Params | Qubit Reduction |
|---|---|---|---|---|---|
| 4 | 4 | 2 | 36 | 18 | 50% |
| 8 | 8 | 3 | 72 | 27 | 62% |
| 16 | 16 | 4 | 144 | 36 | 75% |
| 32 | 32 | 5 | 288 | 45 | 84% |
| 50 | 50 | 6 | 450 | 54 | 88% |

*Angle: $n\_qubits = K$ | Amplitude: $n\_qubits = \lceil \log_2 K \rceil$ | Ansatz params $= 3 \times n\_qubits \times (reps + 1)$*