CONVERSION OF 0.94 vs 0.95
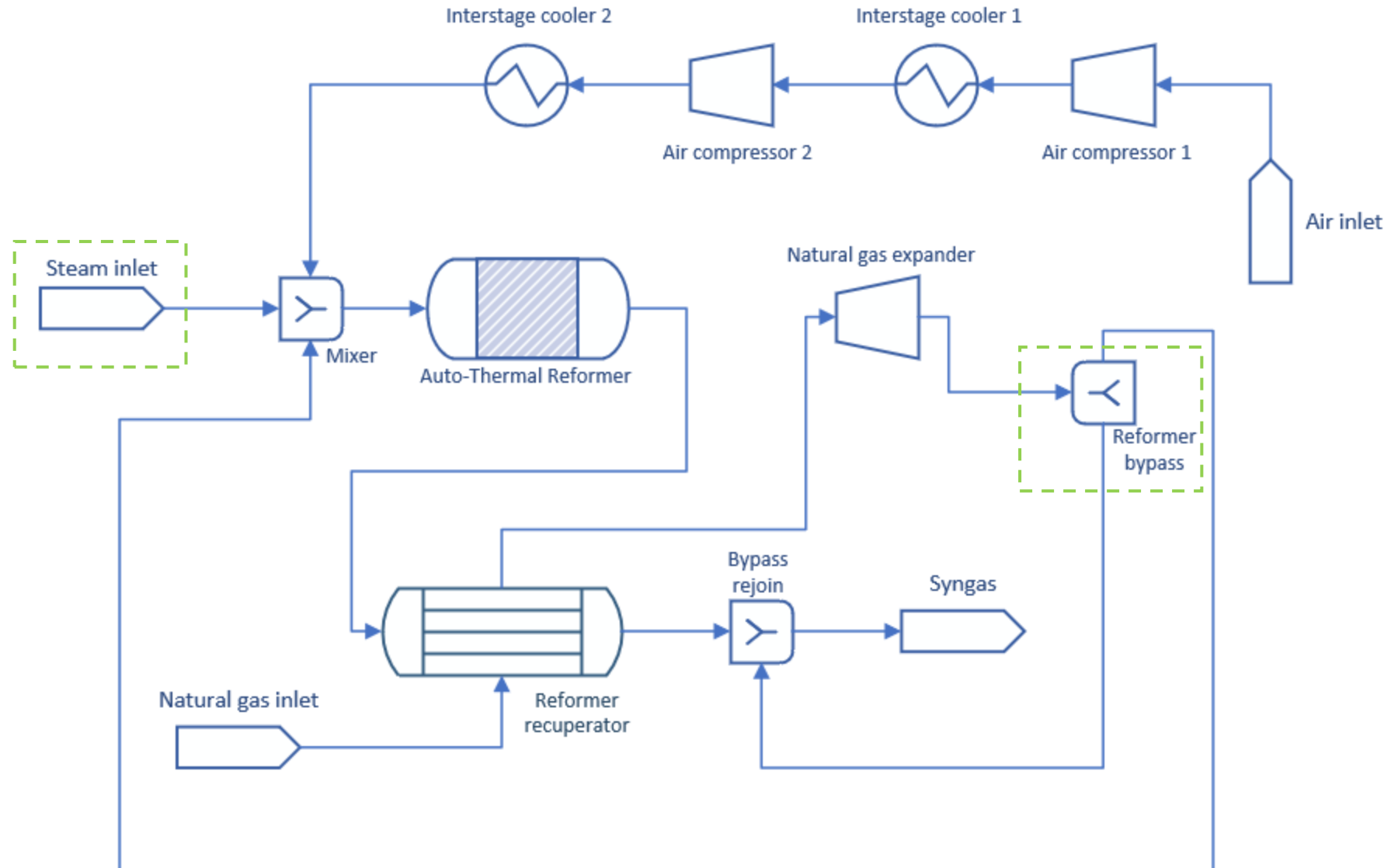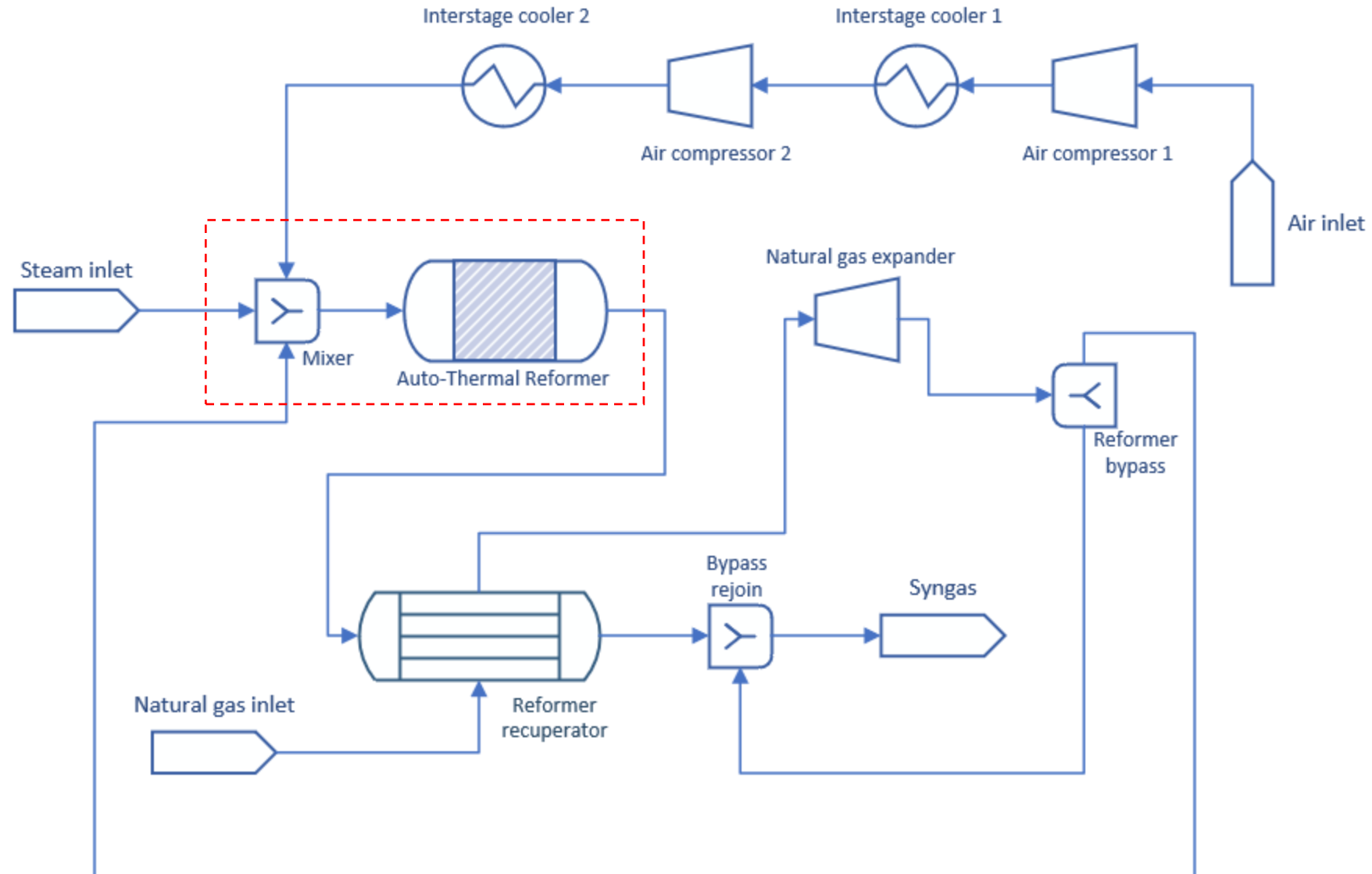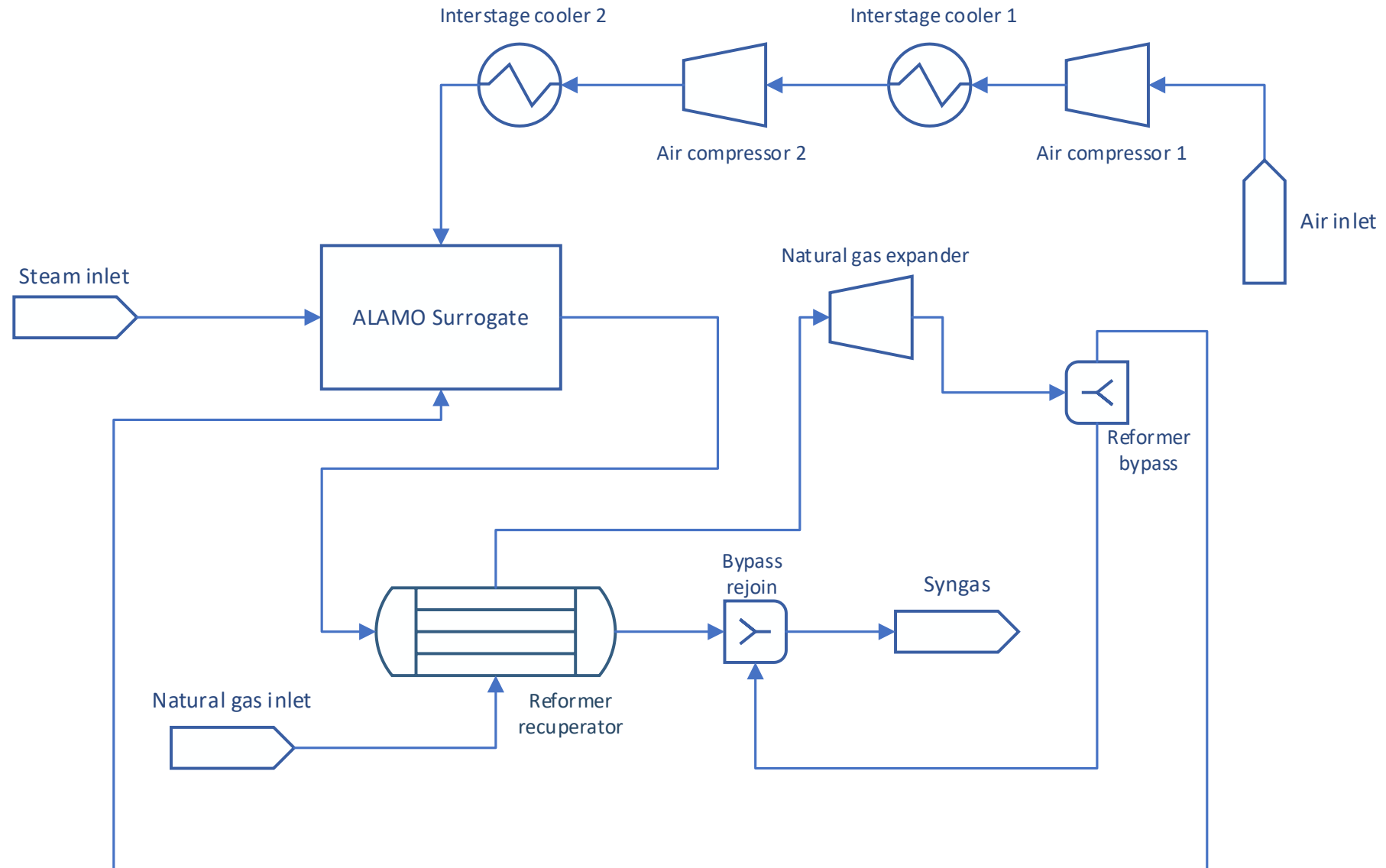
Full Space Flowsheet

ALAMO Flowsheet

ALAMO Flowsheet
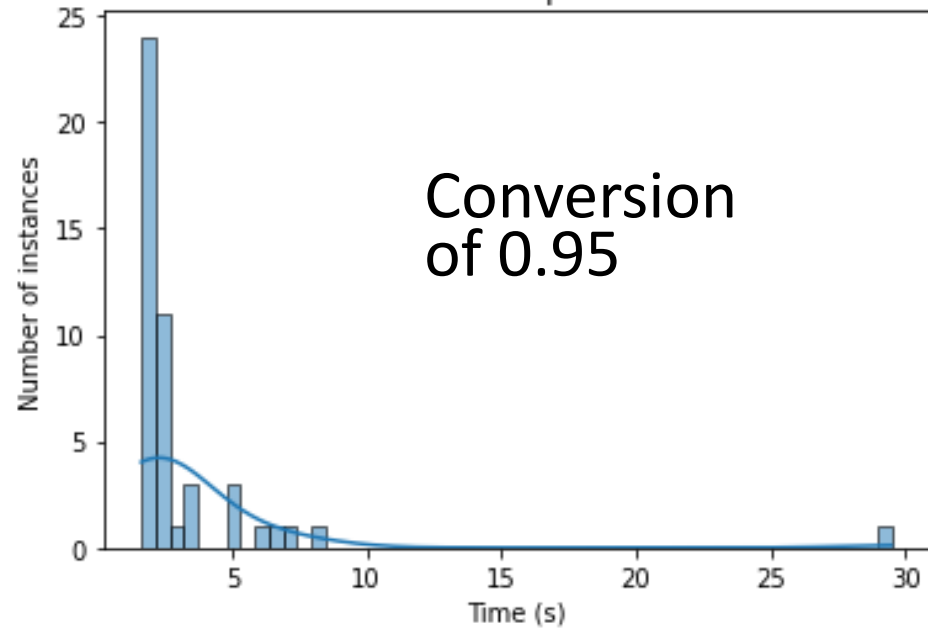
Optimization Problem

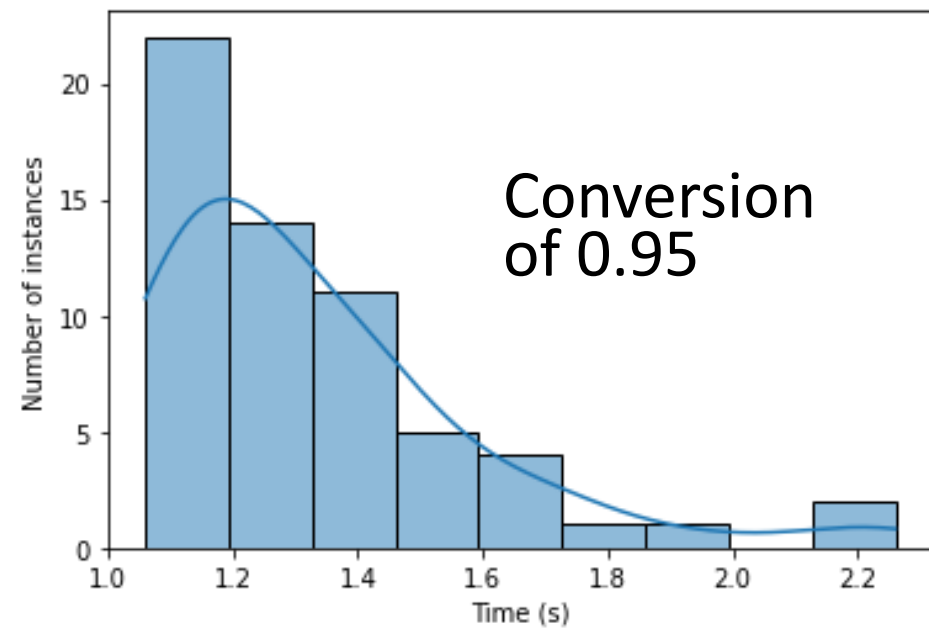Maximize H_2 composition in the product stream such that its minimum flow is 3500 mol/s, its maximum N_2 concentration is 0.3, the maximum reformer outlet temperature is 1200 K, and the maximum product temperature is 650 K.
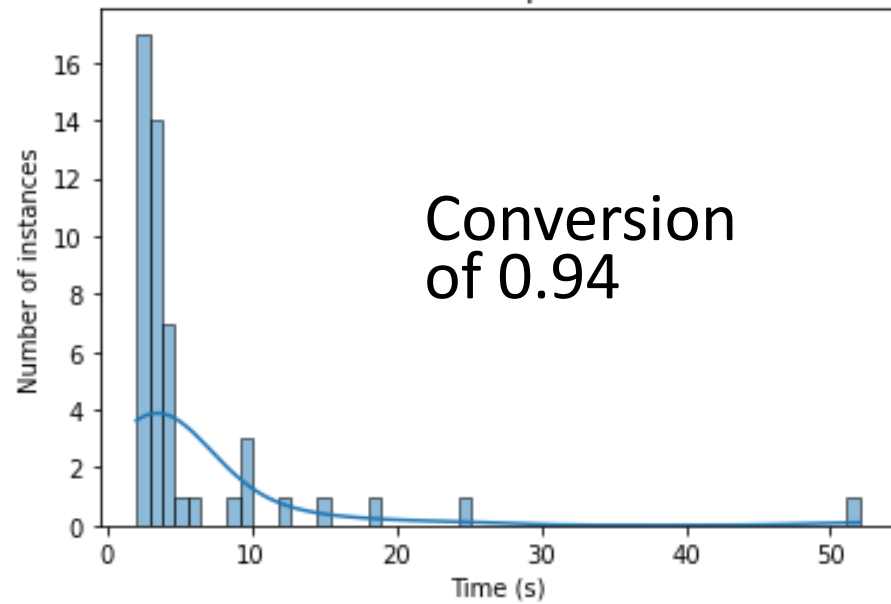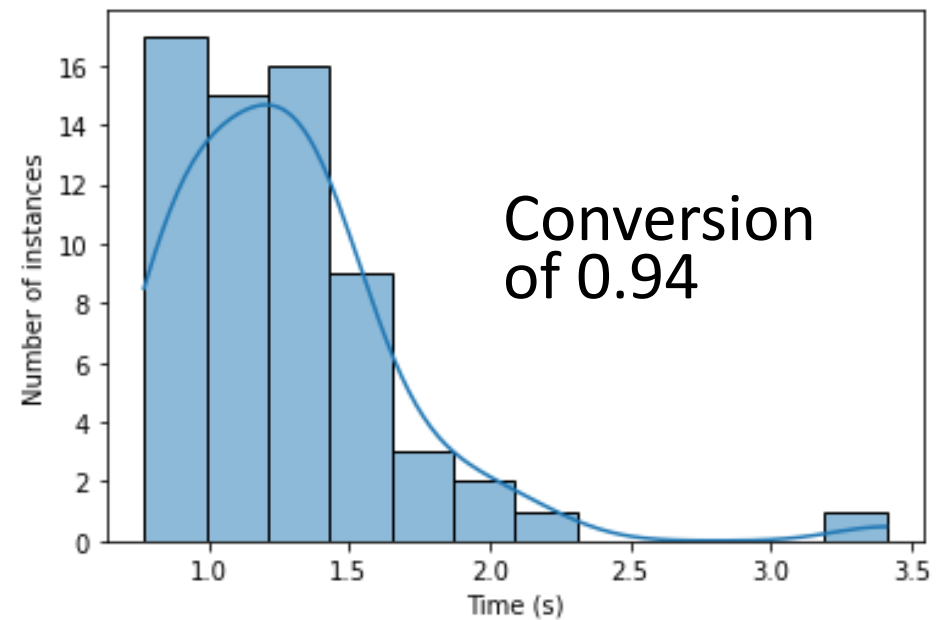
Conversion of 0.95

Conversion of 0.95

Conversion of 0.94

Conversion of 0.94

*Only successful runs considered

	Objective Value	**Steam Flow**	**Bypass Fraction**
Conversion of 0.95	Mean error: 2.0 % Standard deviation: 0.7% Min. error: 0.7% Max. error: 3.4%	Mean error: 4.8 % Standard deviation: 2.4% Min. error: 0.1% Max. error: 7.5%	Mean error: 2.9 % Standard deviation: 0.9% Min. error: 1.2% Max. error: 4.5%
Conversion of 0.94	Mean error: 1.8 % Standard deviation: 0.7% Min. error: 0.7% Max. error: 3.5%	Mean error: 7.3 % Standard deviation: 0.6% Min. error: 5.5% Max. error: 7.9%	Mean error: 2.7 % Standard deviation: 0.8% Min. error: 1.4% Max. error: 4.7%

*Only successful runs considered

ALAMO ATR Flowsheet Validation

- Compare objective values between:
1. Optimization of Full Space ATR Flowsheet
2. Solution of square system with the degrees of freedom determined by the ALAMO ATR Flowsheet.

*Only successful runs considered