



# Modelling, Simulation and Optimization CLEAN FOSSIL FUELS AND POWER GENERATION



## Modelling, Simulation and Optimization

CANMET Energy Technology Centre-Ottawa (CETC-O) has strong expertise in modelling, process simulation and optimization. We are dedicated to providing services with high professionalism to satisfy the needs of our clients and partners.

Our scope of services includes (but is not limited to):

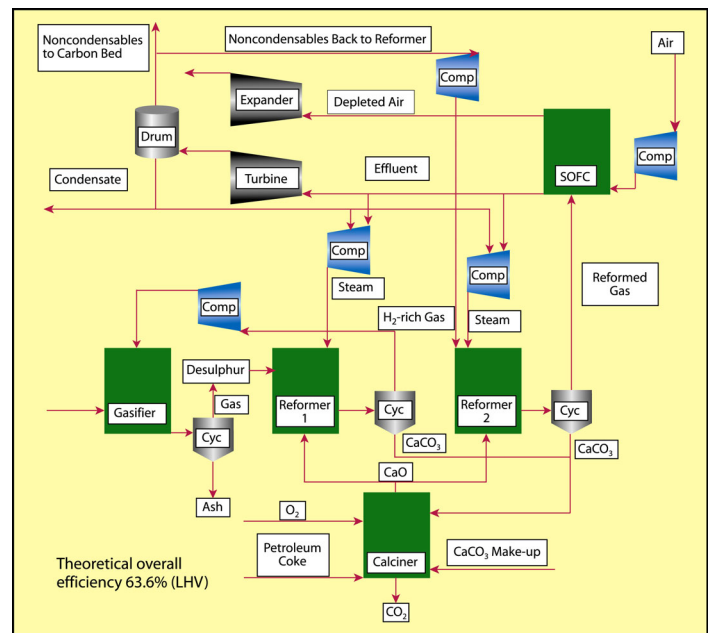
- Process development and scale-up;
- Rigorous mass and energy balances;
- Reliable estimation of capital investment and operational costs;
- Evaluation of new processes;
- Analysis/modification of existing processes;
- Process integration; and
- Sensitivity analyses for determination of key variables for process control.

The above activities have been a crucial part in our work for :

- feasibility studies;
- proposal evaluation/selection; and
- consultancy assistance.

We mainly use Aspen Plus for process simulation and Aspen Icarus for equipment sizing and economic evaluation. Our commitment to first-class support for our clients in both the private and public sectors is backed by the extensive knowledge and long-term experience of a dedicated team.

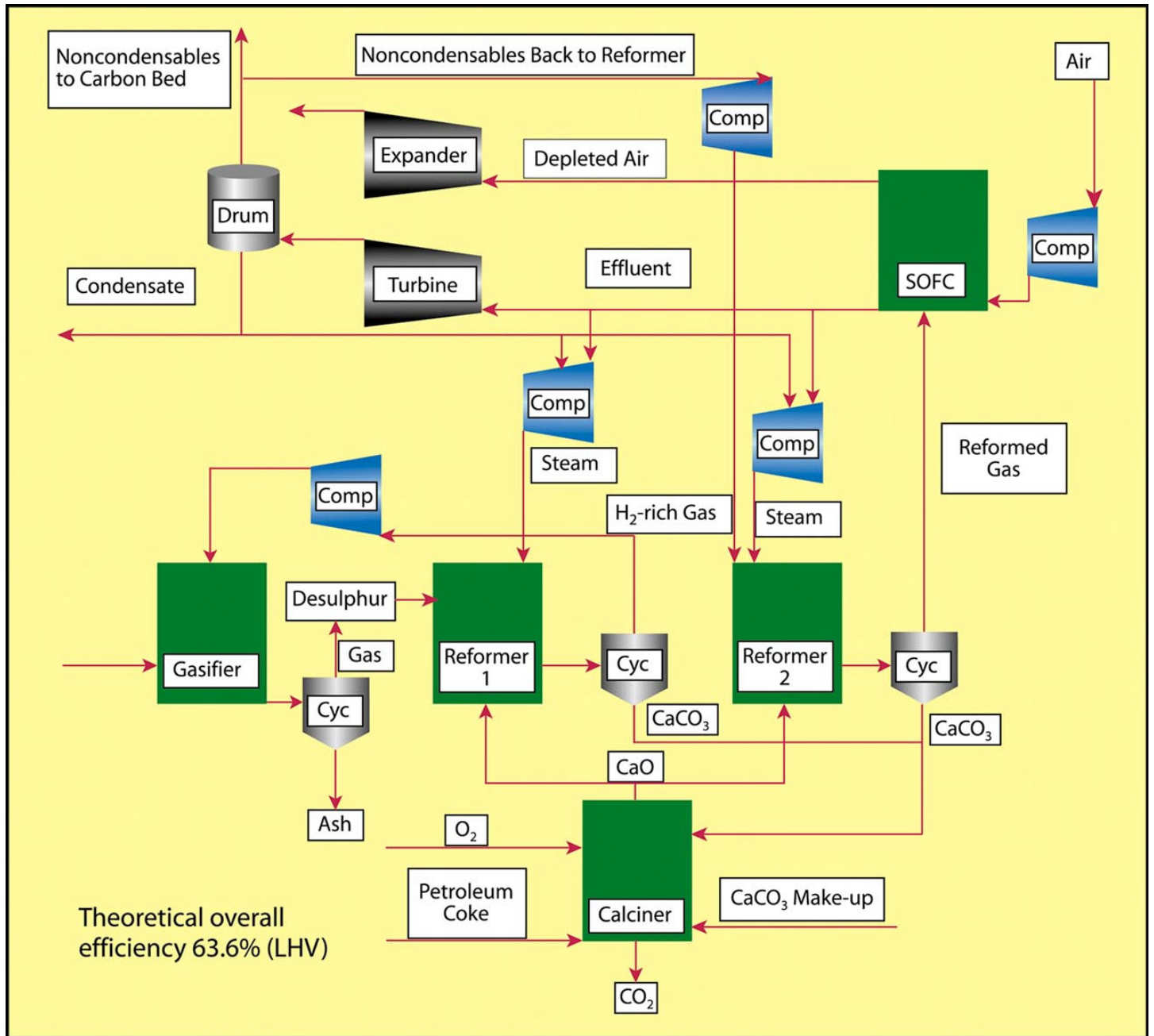
The following diagram is an illustration of our work (published in Fuel, 83(2004) 1341-1348). (A larger version of the diagram is found on the



A modified zero emission process for power generation based on gasification of petroleum coke (also applicable to high-carbon coals), which enables firing low-cost, high-sulphur petroleum coke and capturing CO<sub>2</sub> and sulphur with high energy efficiency.

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*Larger version of previous diagram: A modified zero emission process for power generation based on gasification of petroleum coke (also applicable to high-carbon coals), which enables firing low-cost, high-sulphur petroleum coke and capturing CO<sub>2</sub> and sulphur with high energy efficiency.*