



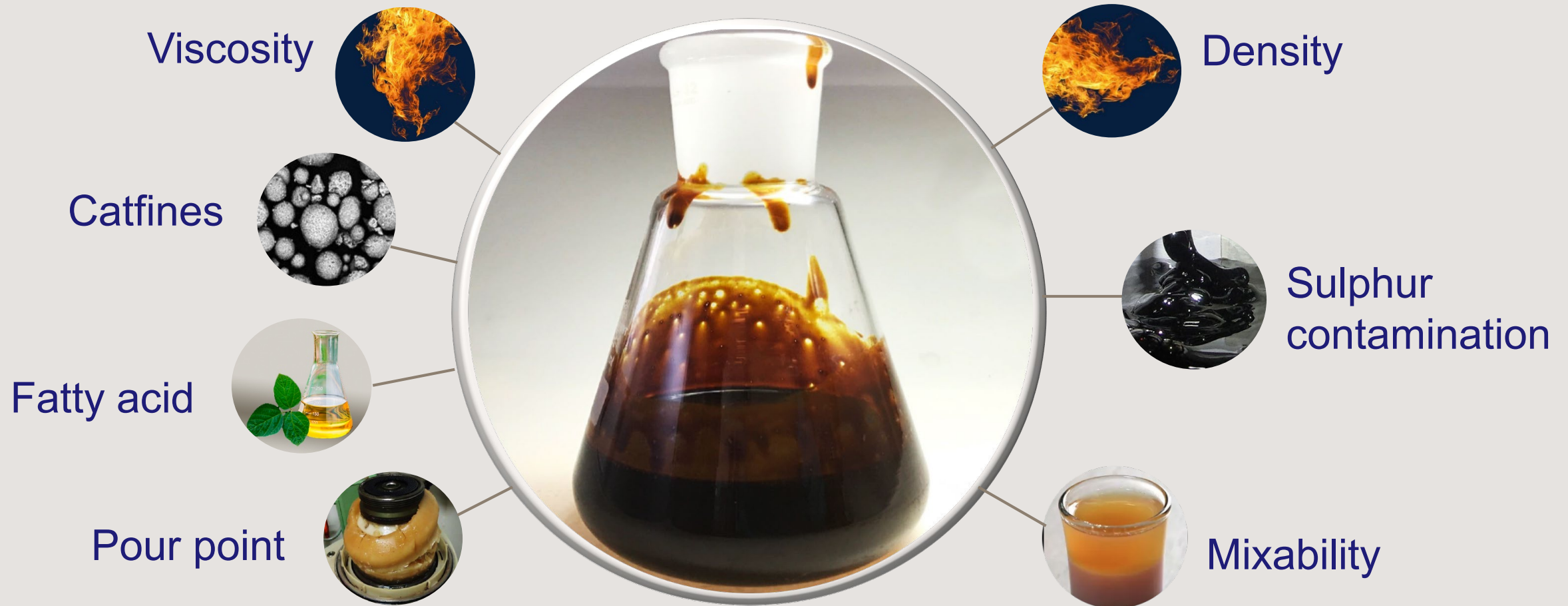


2020 Impact on boilers

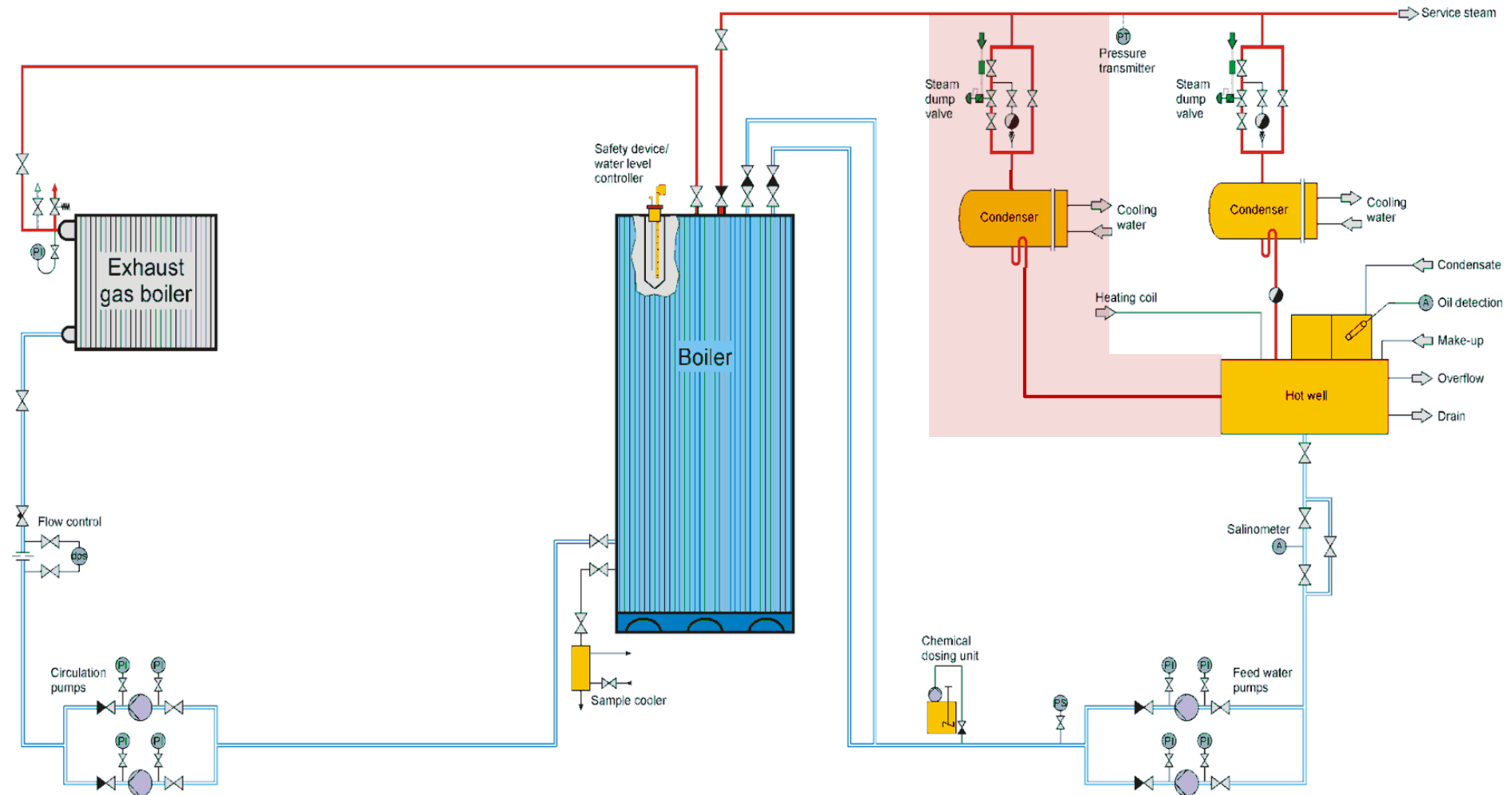
Jean-Charles Lecuyer

Considerations with the new compliant fuels

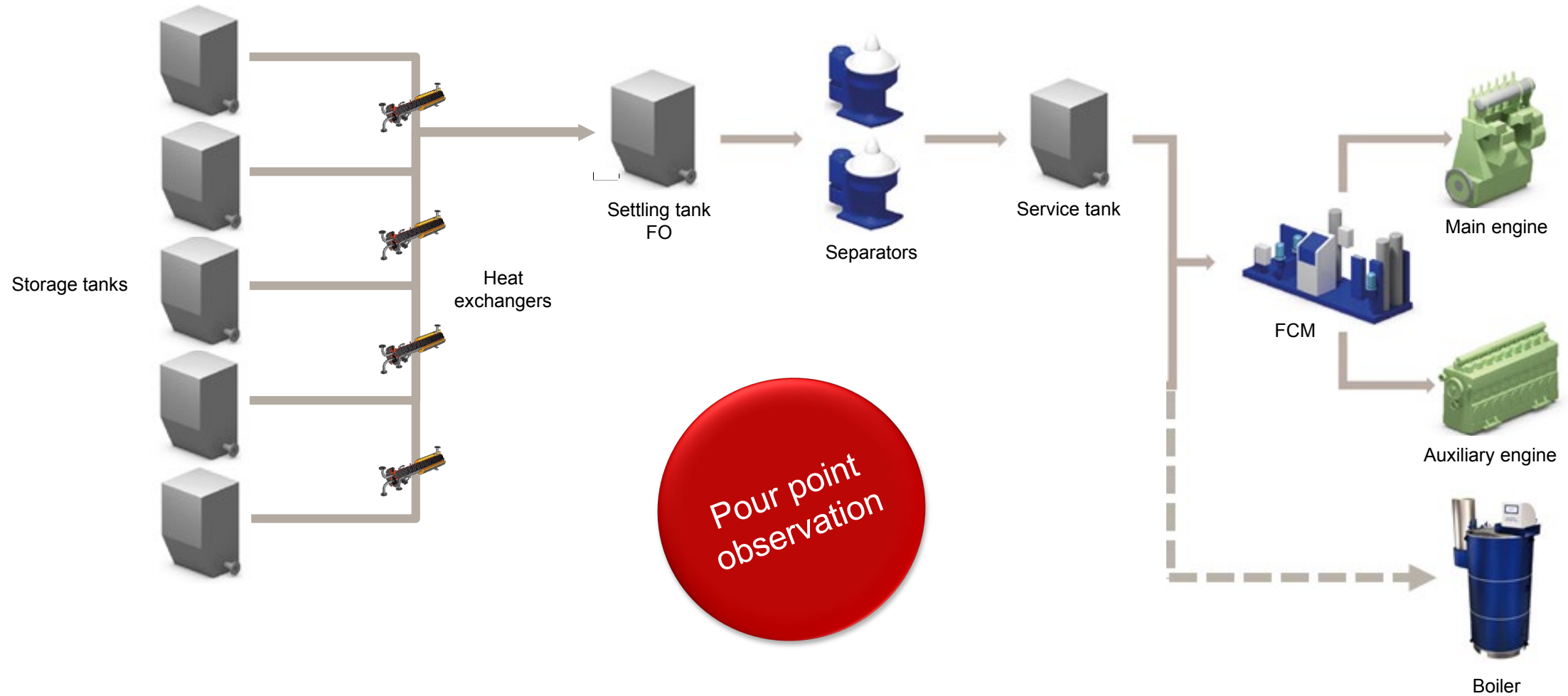
- seen from a boiler perspective



Steam balance – excess of steam?



Steam balance – lack of steam?



Your compliant strategy

- what do you do with your boilers?

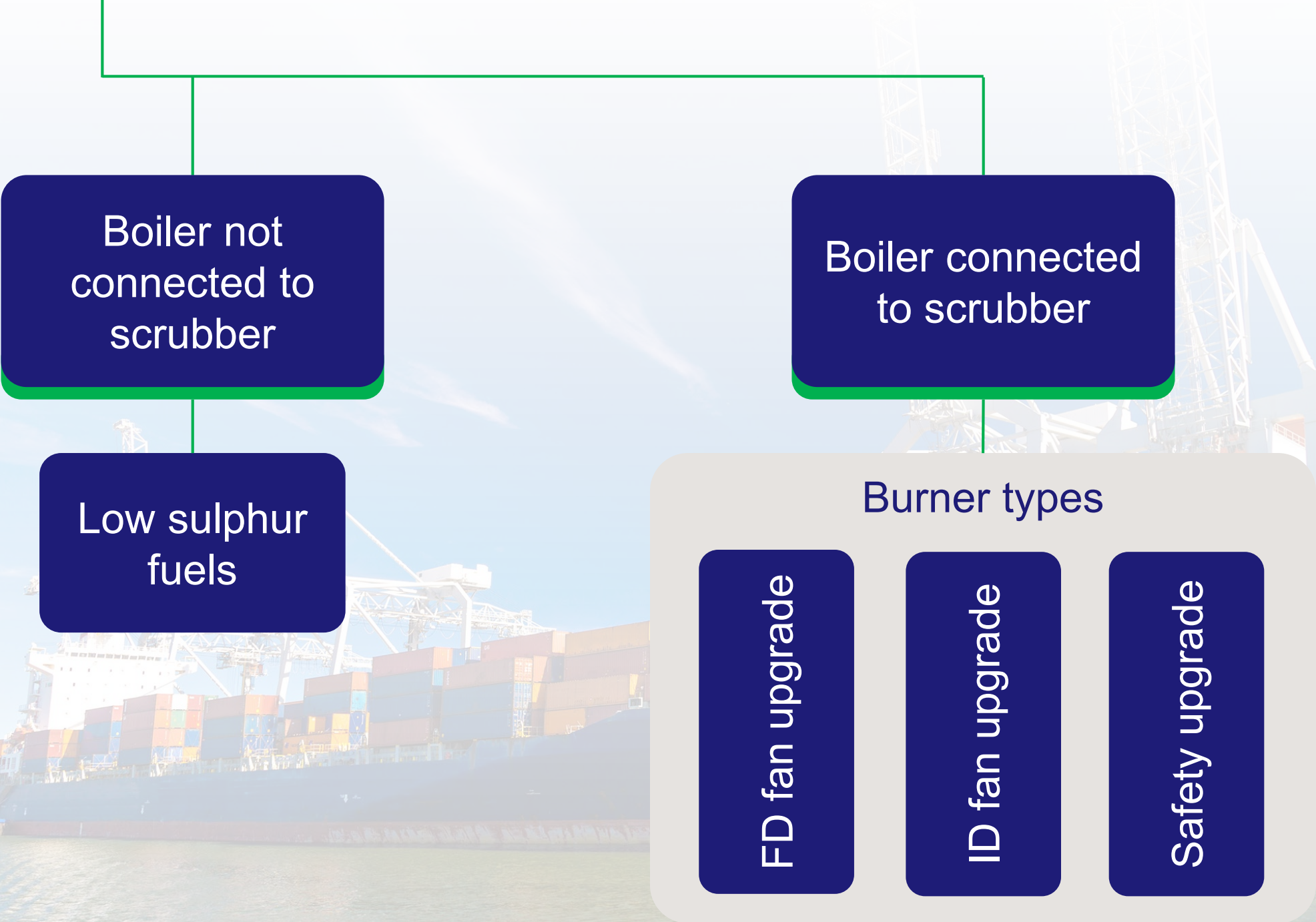




Scrubber

Low sulphur
fuels

LNG



```
graph TD; Root[ ] --- B1[Boiler not connected to scrubber]; Root --- B2[Boiler connected to scrubber]; B1 --- LSF[Low sulphur fuels]; B2 --- BT[Burner types]; BT --- FDU[FD fan upgrade]; BT --- IDU[ID fan upgrade]; BT --- SU[Safety upgrade];
```

Boiler not connected to scrubber

Low sulphur fuels

Boiler connected to scrubber

Burner types

FD fan upgrade

ID fan upgrade

Safety upgrade



Observations

- Restriction in natural draught in the boiler
- Increased back pressure
- Safety interlock

Boiler included
in scrubber

Burner types

FD fan upgrade

ID fan upgrade

Safety upgrade



Scrubber

Low sulphur
fuels

LNG



MGO + VLSFO

MGO only

What fuel strategy for the boilers?



MGO + VLSFO

Boiler plant
MGO upgraded?

Yes

- Re-commissioning
- Technical advice

No

- MGO Upgrades
- Technical advice

- MGO Upgrades
- Technical advice

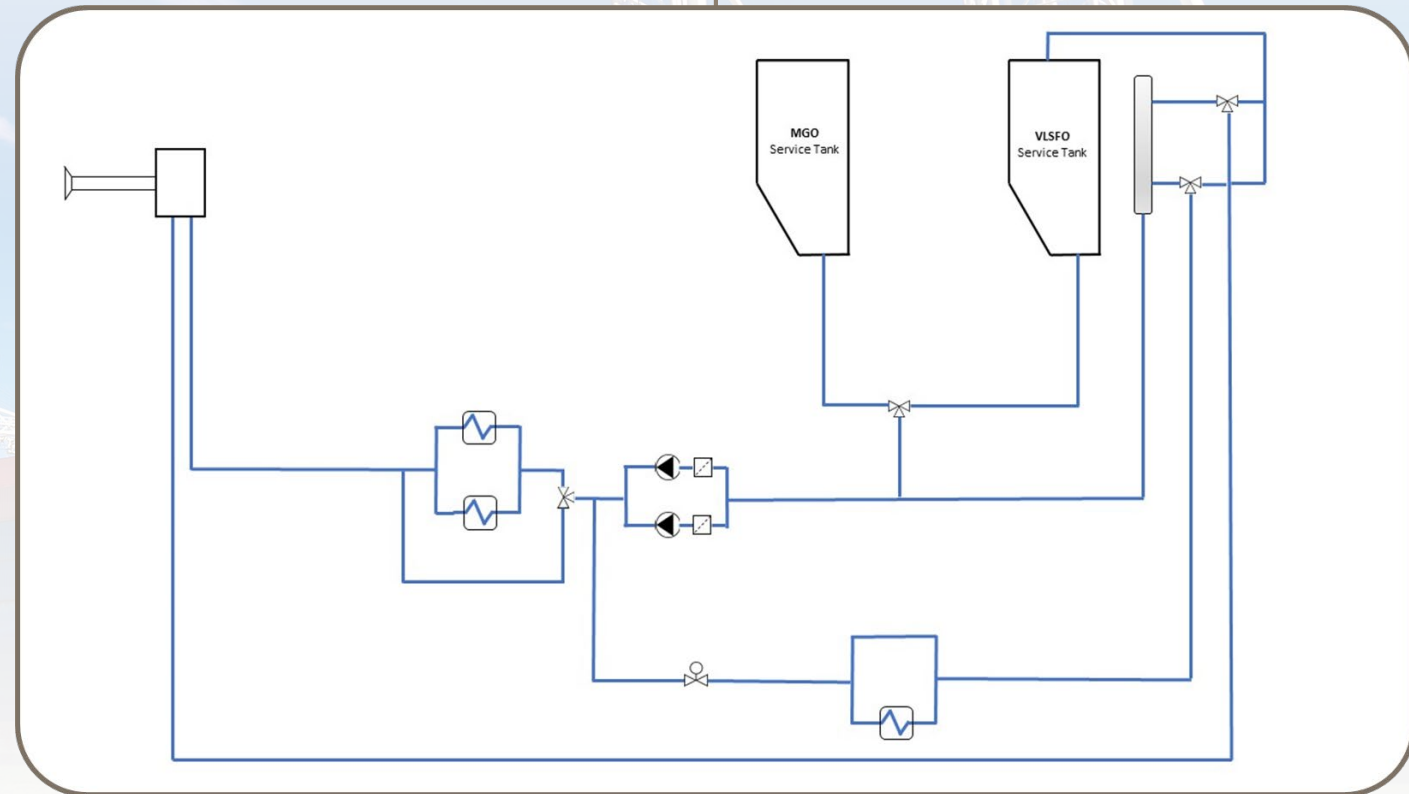
Single-Line Fuel System

Included

- Flushing
- MGO Cooler
- MGO Temp
- MGO Press
- Post purge
- Flame scan

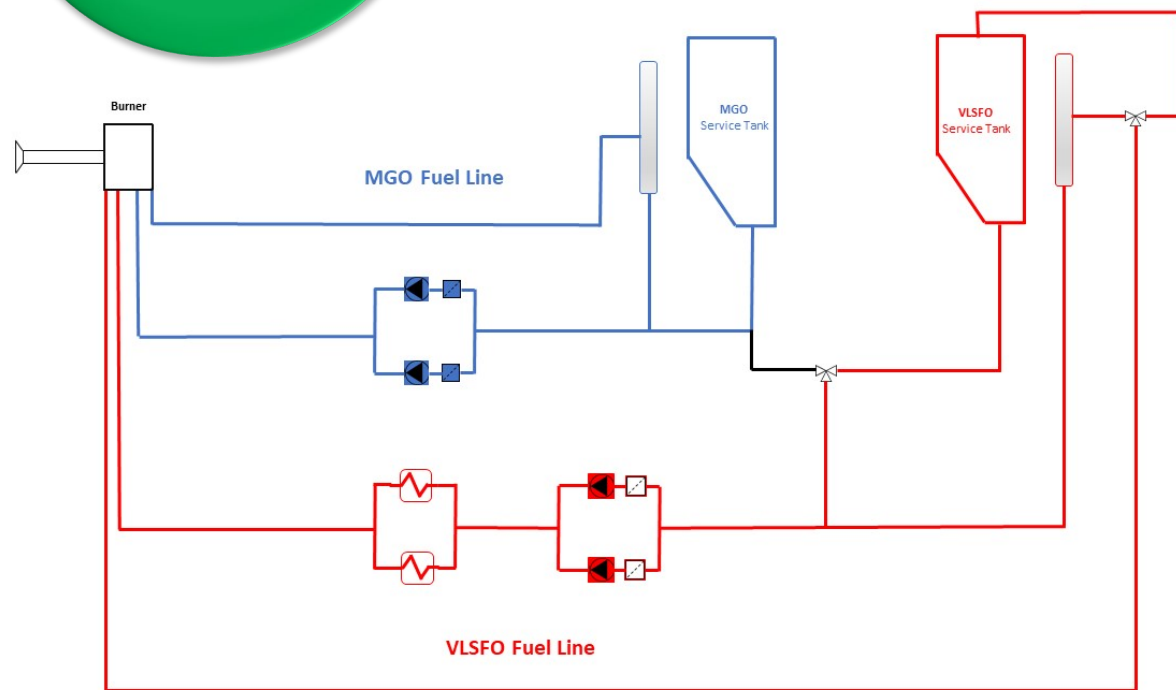
Considerations

- Trading route
- Flushing
- Fuels mixable?
- Paraffins
- OPEX cost



Alfa Laval's
recommended
2020 solution

- MGO Upgrades
- Technical advice



Double-line Fuel System

Included

- Flushing
- MGO Cooler
- MGO Temp
- MGO Press
- Post purge
- Flame scan
- No mixing

Considerations

- Trading route
- CAPEX



MGO + VLSFO

MGO Only

What fuel strategy for the boilers?

```
graph TD; A[MGO Only] --> B[Boiler plant MGO upgraded?]; B -- Yes --> C[Re-commissioning]; B -- No --> D[MGO Upgrade];
```

MGO Only

Boiler plant
MGO upgraded?

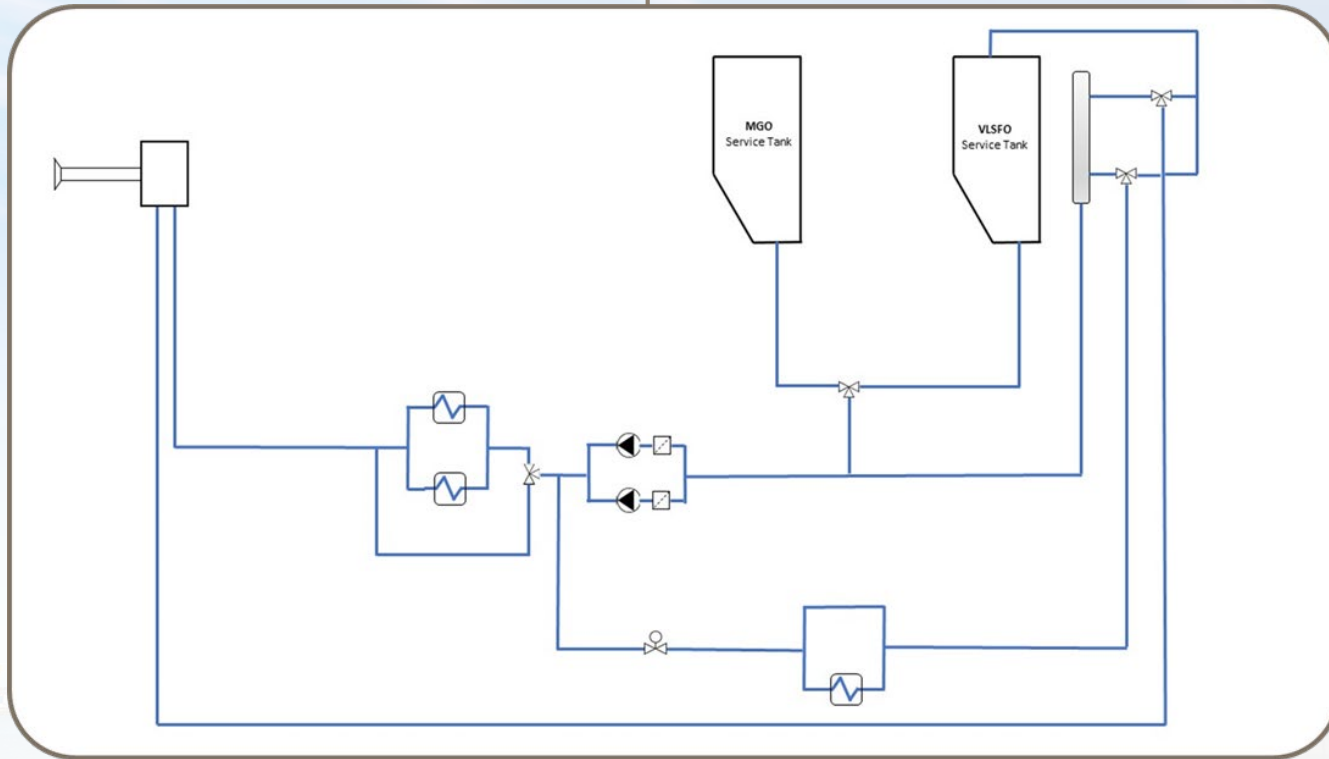
Yes

Re-commissioning

No

MGO Upgrade

Boiler plant MGO upgraded?



MGO Upgrade

Included

- MGO Cooler
- MGO Temp
- MGO Press
- Post purge
- Flame scan
- No HFO

Considerations

- Trading route
- CAPEX

