



Investment Plan 2008-2011



SARROCH SITE: SIGNIFICANT GROWTH OPPORTUNITIES

In line with our long term vision, the investment plan for 2008-2011 will focus on:

- increasing conversion capacity, switching fuel oil to diesel
- improving energy efficiency
- exploiting unconventional crudes
- enhancing overall refinery performance

Our approach will remain based on:

- continuous improvement
- integrated but independent projects
- mitigated investment risk
- operational and HSE excellence





INCREASE CONVERSION CAPACITY

MildHydroCracking2 revamping & new Steam Reforming Unit

- ✓ MHC 2 increase capacity from 60,000 to 65,000 b/d
- ✓ MHC 2 increase conversion by about 5%

CAPEX: EUR 190 ml

**+5,500 b/d of diesel
(270 kton/year)**

Visbreaking Revamping

- ✓ conversion increased by about 5%

CAPEX: EUR 155 ml

**+2,000 b/d of diesel
(100 kton/year)**



IMPROVE ENERGY EFFICIENCY

Energy recovery projects

- ✓ Improved thermal integration
- ✓ Energy recovery from exhaust gas
- ✓ Upgrade combustion processes

CAPEX: EUR 55 ml

**-1,300 b/d (75 kton/year)
of fuel consumptions**

ENHANCE REFINERY PERFORMANCE

Process optimisation and increase in throughput

- ✓ FCC and Alky
- ✓ Tank farm

Flexibility to further increase runs of unconventional crudes

- ✓ Light waxy, Condensate, Extra heavy, etc.

CAPEX: EUR 220 ml

**+10,000 b/d (500 kton/year)
of total runs and unconventional crudes**