

# Temperatures and NOx Emissions over various Test Cycles

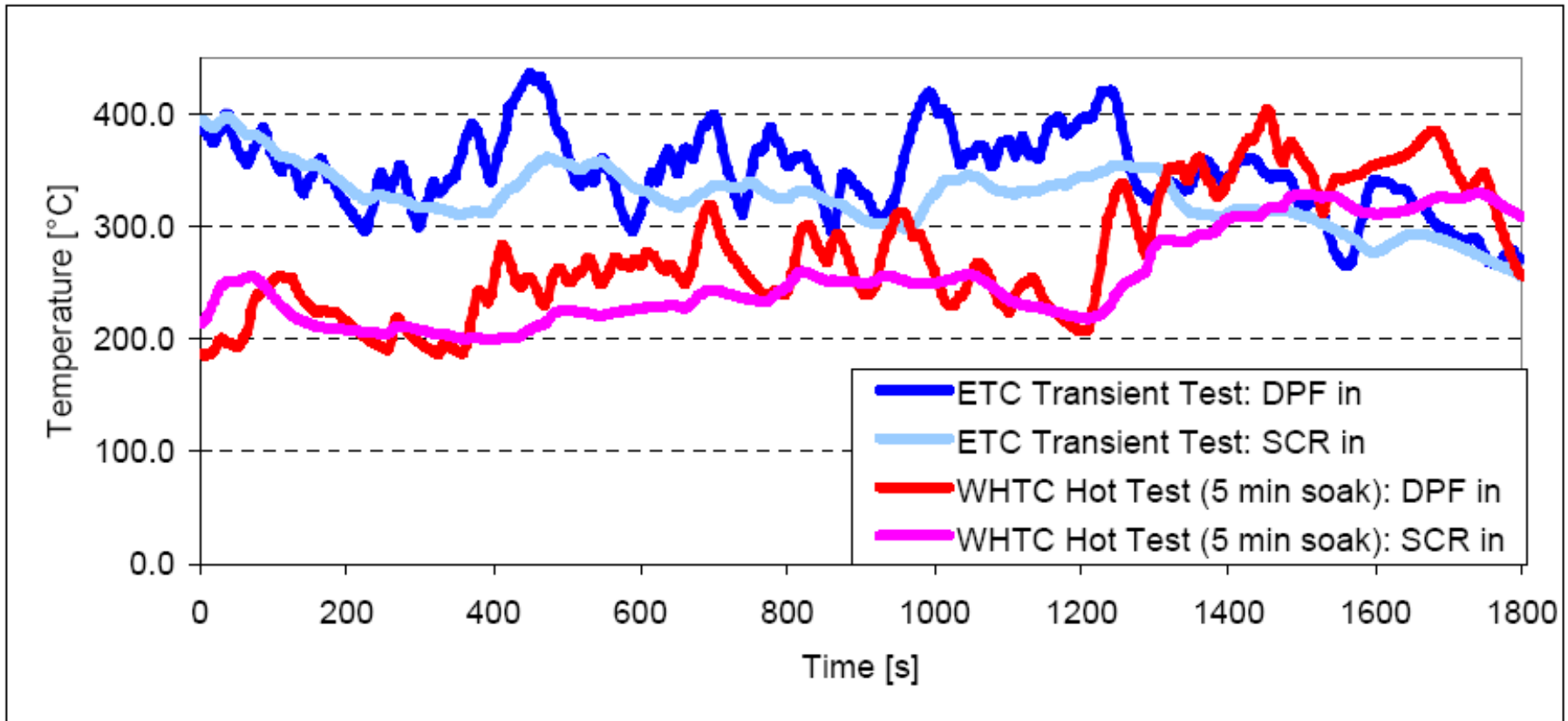
REC 10 Meeting, Budapest  
24-25 April 2012



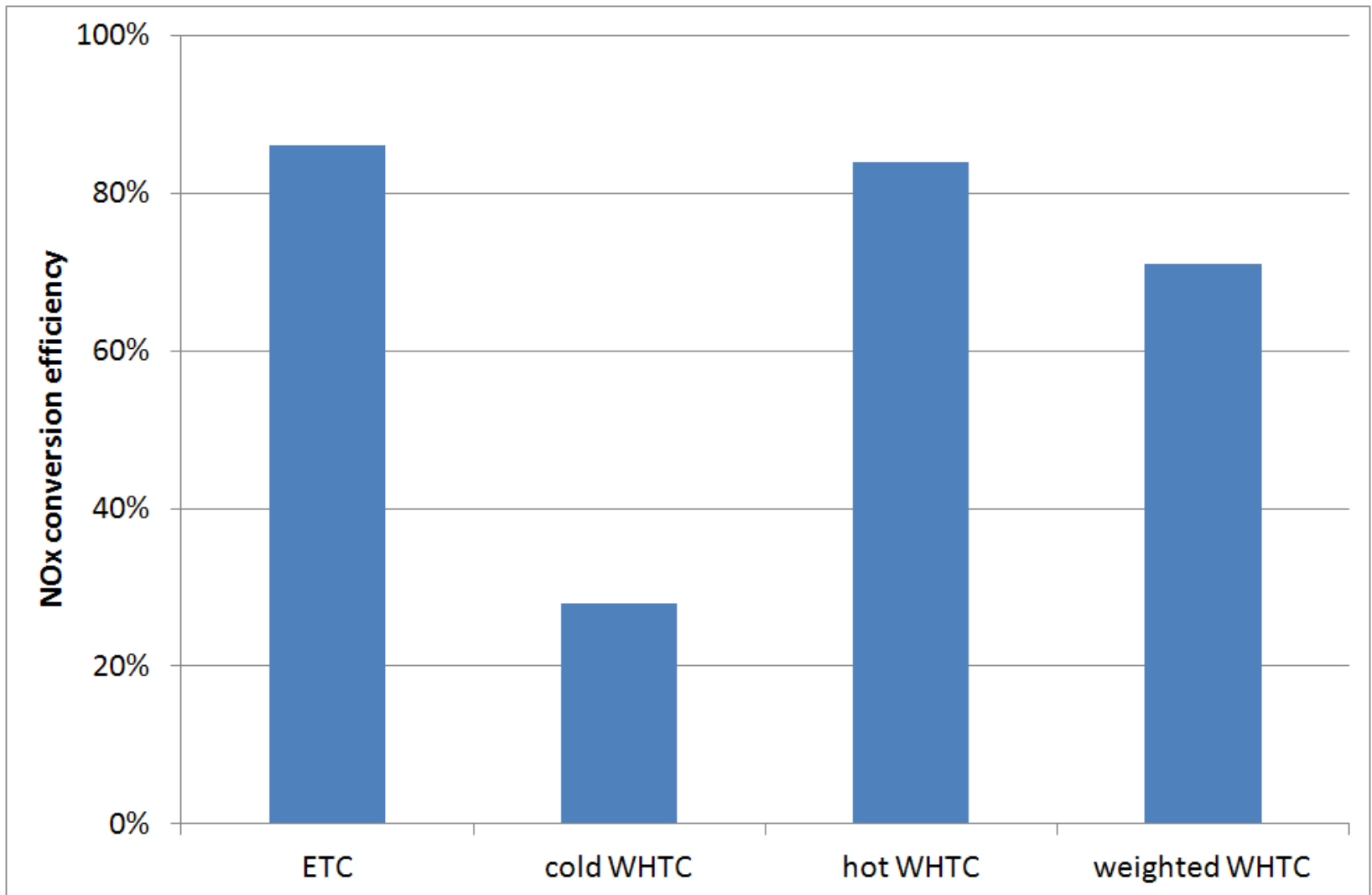
# Engine N°1

- AECC Euro VI HD test program
- 7.5L Heavy-duty engine
- US07 engine retrofitted with PM and NOx Emission Control System to demonstrate technical feasibility of Euro VI
- No heat-up strategy

# Temperature Profiles: ETC and hot-start WHTC



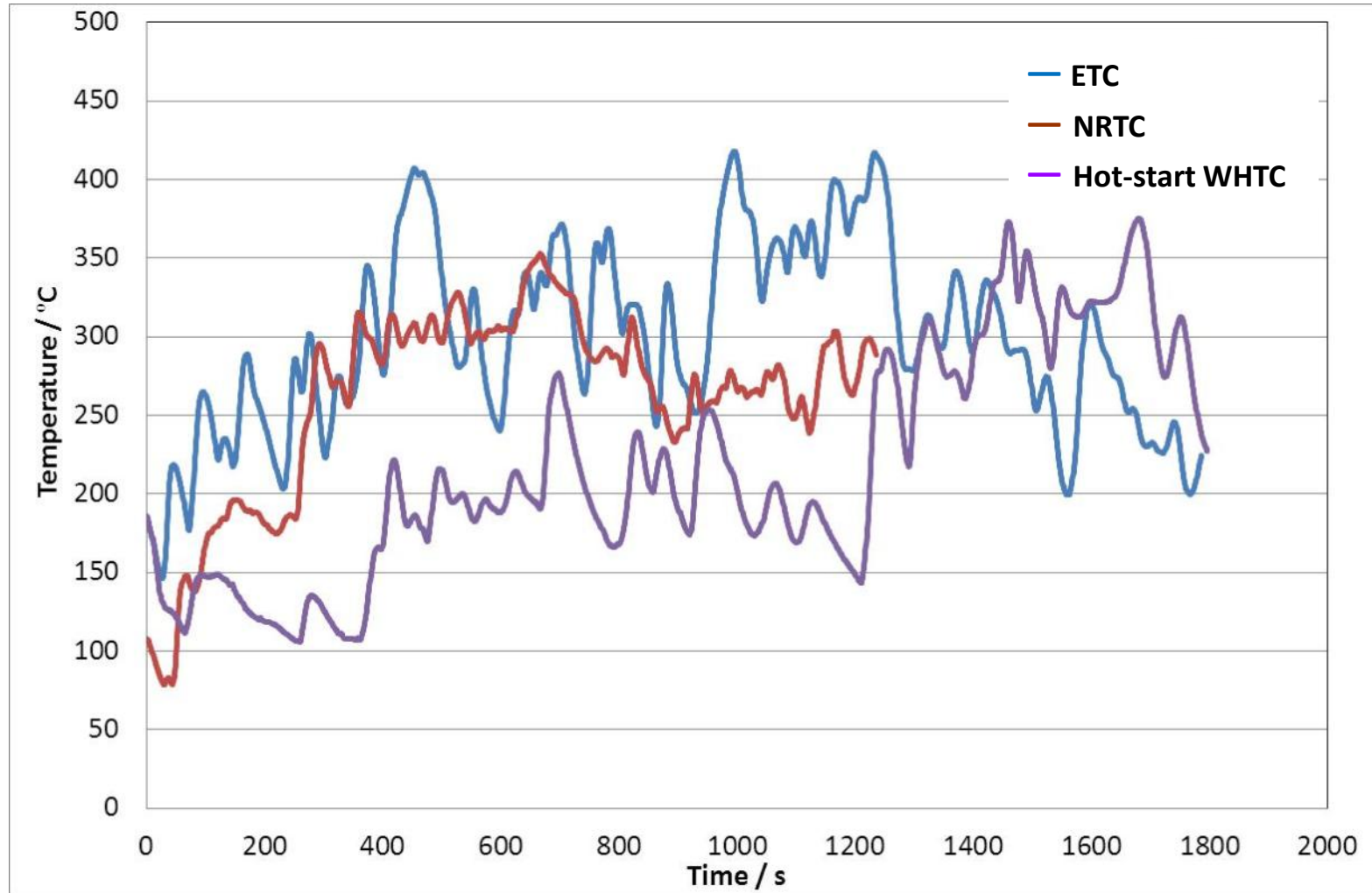
# NOx Conversion over ETC and WHTC



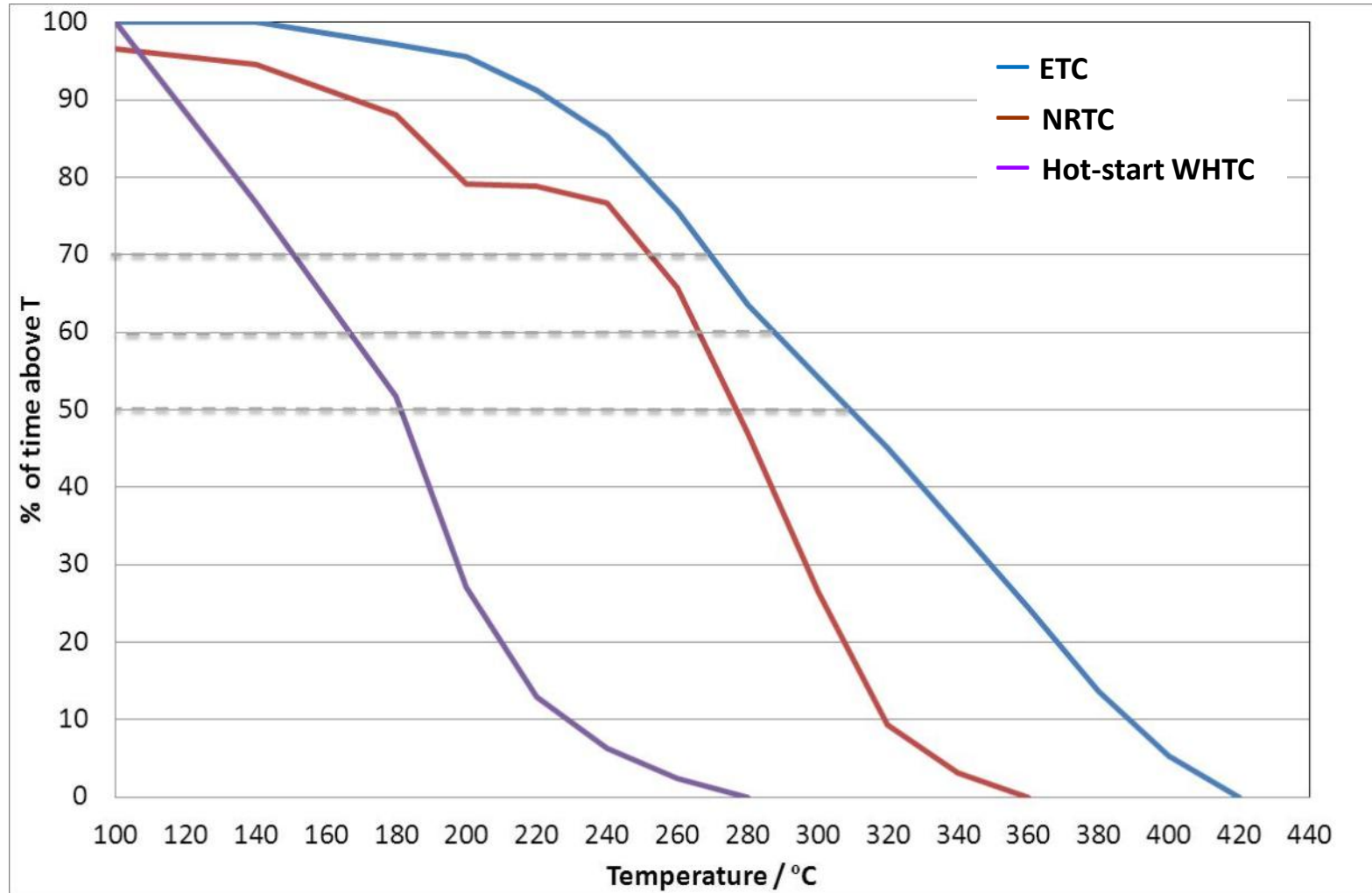
# Engine N°2

- 3.9L Heavy-duty engine
- Euro III engine retrofitted with NOx Emission Control System

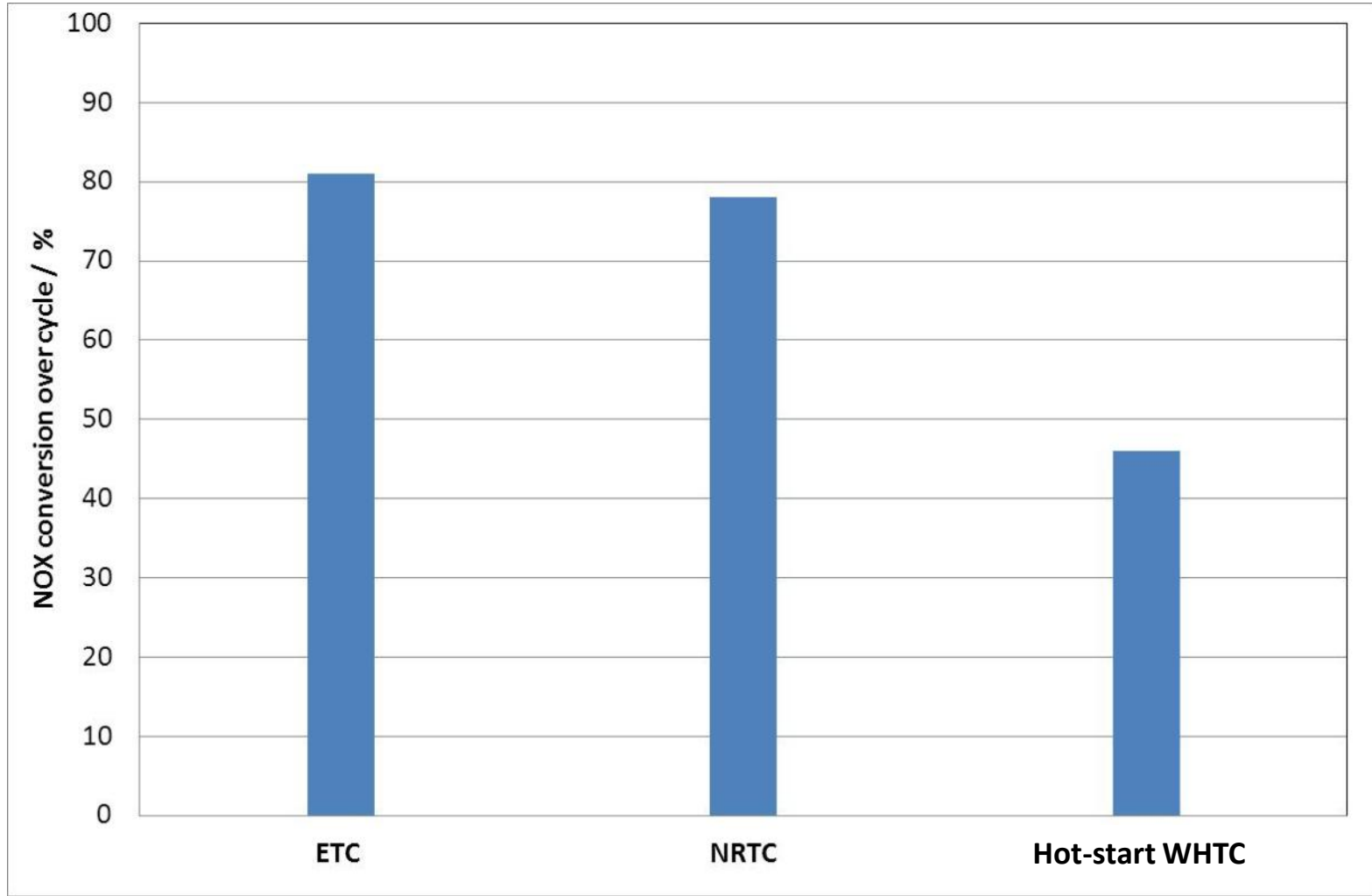
# Temperature Profiles: ETC, NRTC and hot-start WHTC



# % of Time spent above Temperature: ETC, NRTC and hot-start WHTC

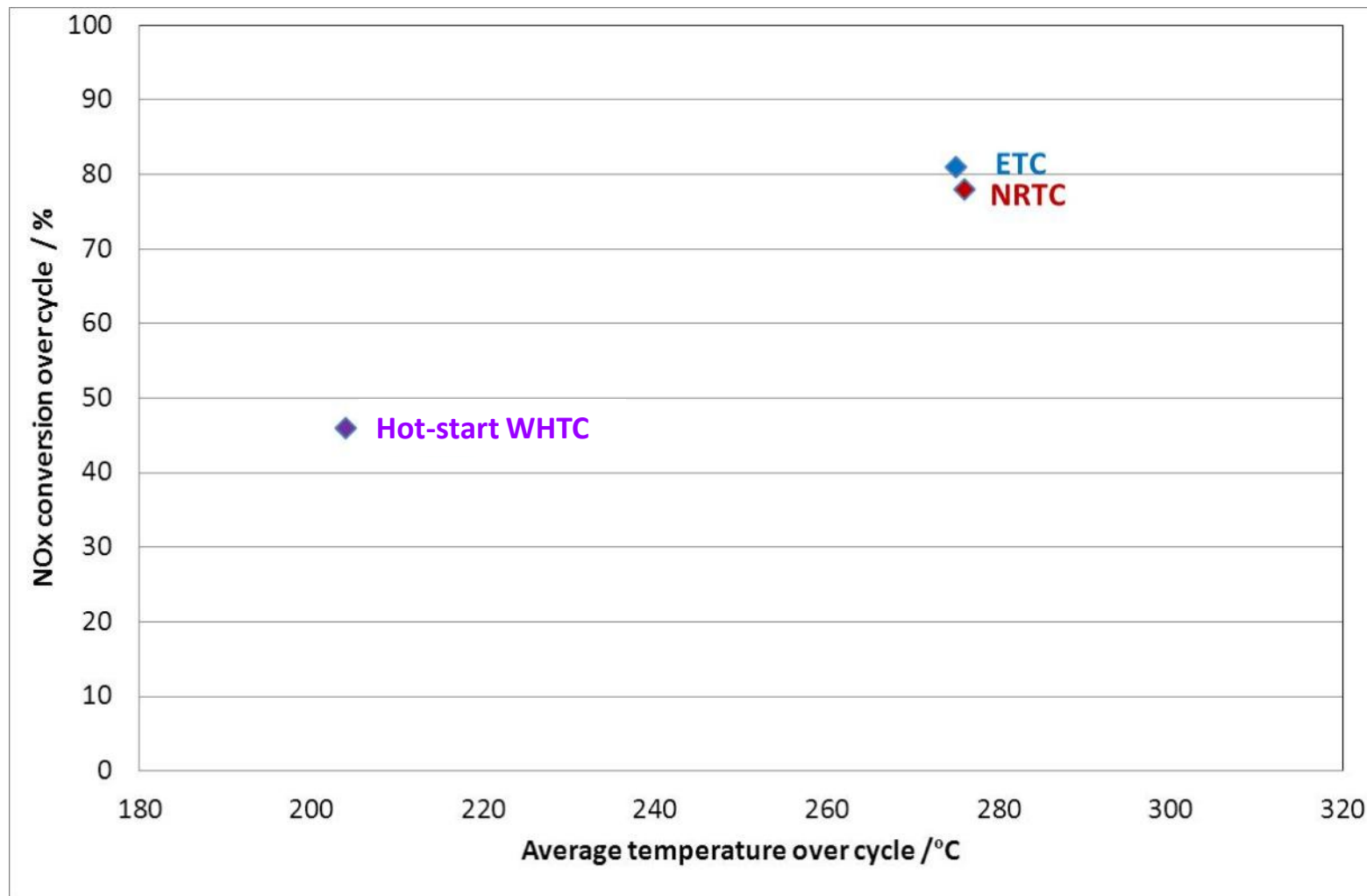


# NOx Conversion over ETC, NRTC and hot-start WHTC





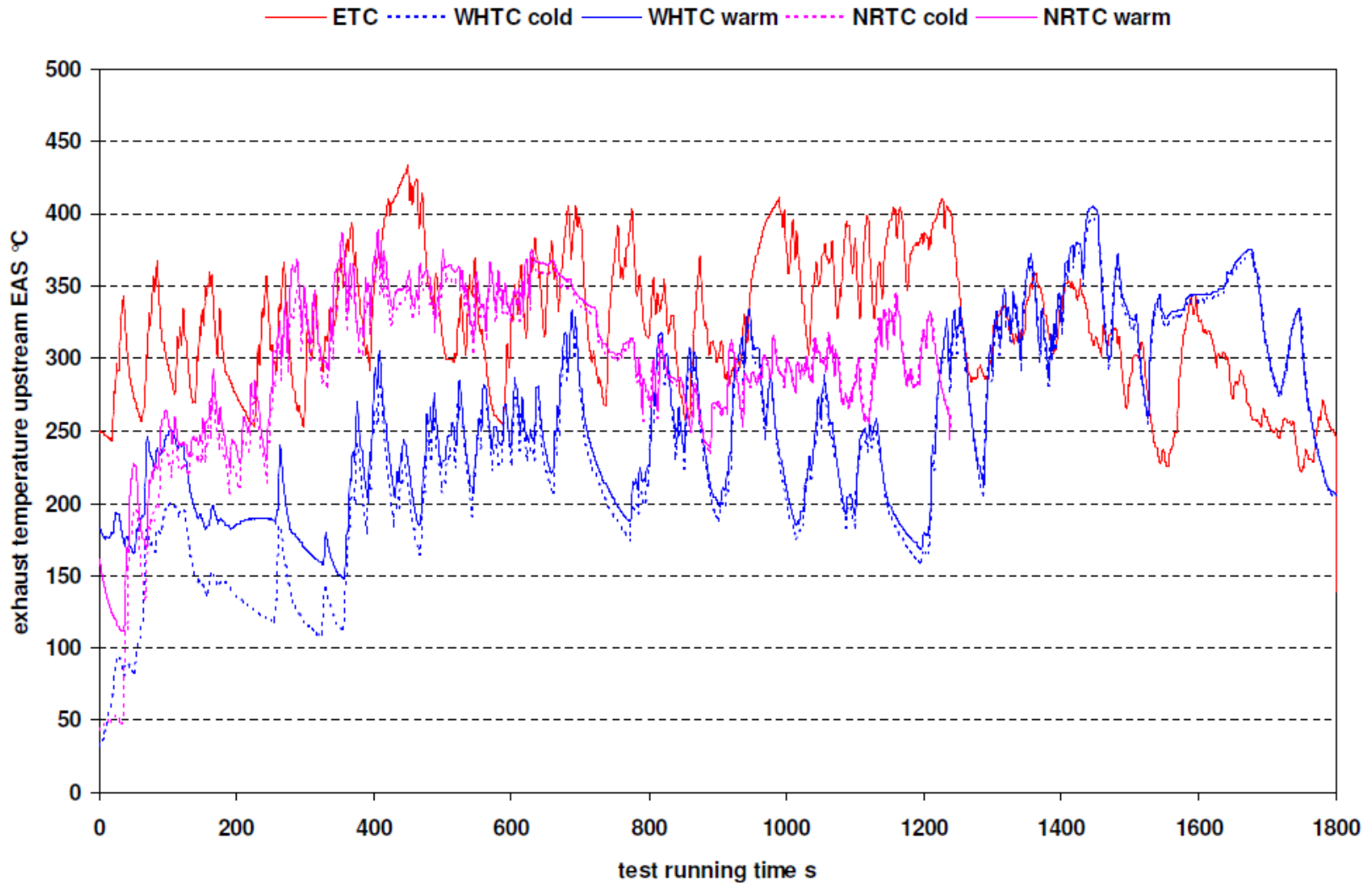
# NOx Conversion vs. Temperature over ETC, NRTC and hot-start WHTC



# Engine N°3

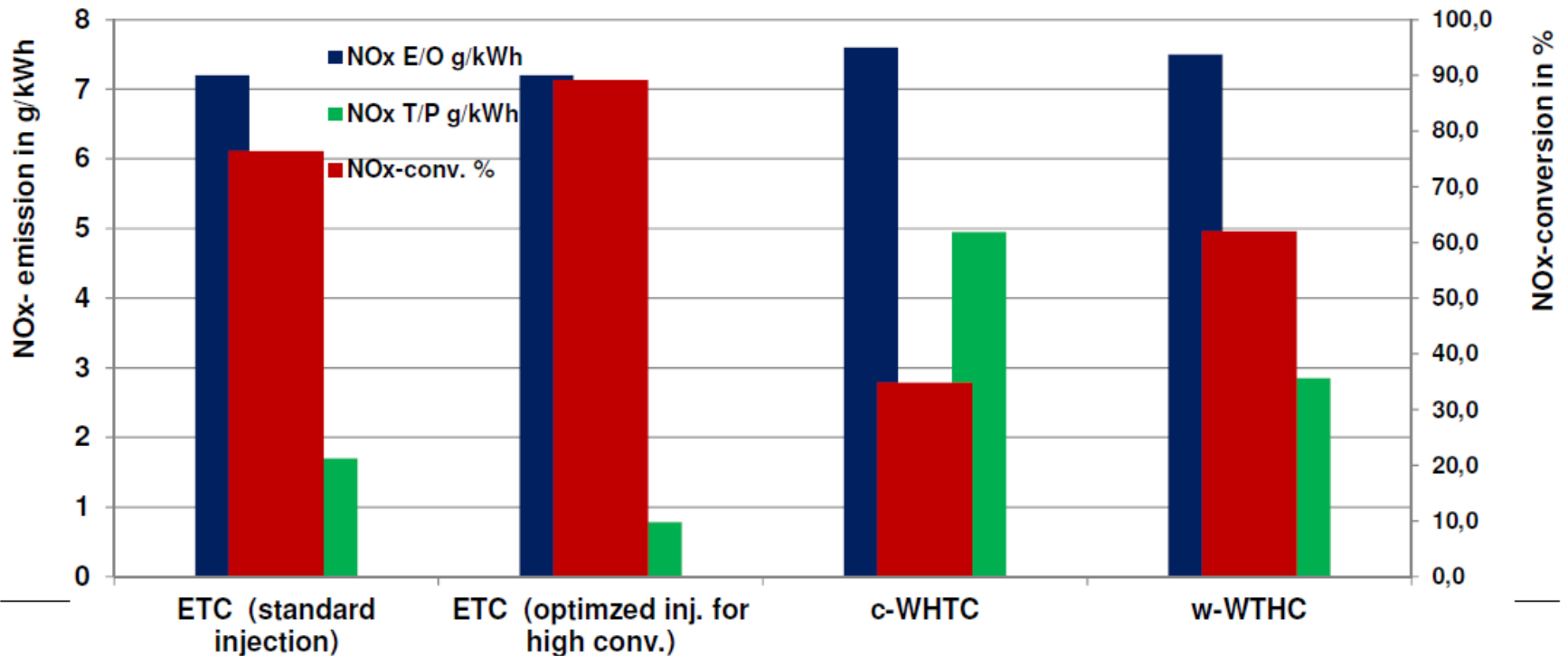
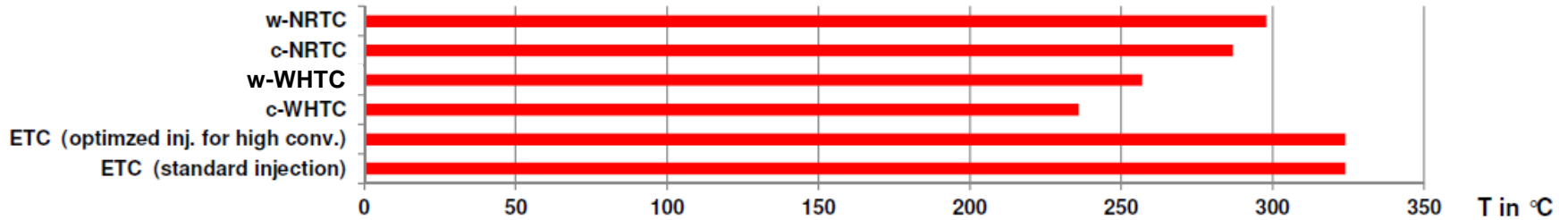
- 13L Heavy-duty engine
- Euro V engine equipped with PM and NOx Emissions Control System

# Exhaust Temperatures Upstream of ECS over ETC, NRTC and WHTC



# Exhaust Temperatures and Achievable NOx Conversions

T cycl avg °C



# Summary

- Limited data (3 engines).
- The lower NO<sub>x</sub> conversions achieved for retrofit systems on WHTC compared to ETC should be taken into account if retrofit NO<sub>x</sub> conversion standards are to be set.