



Cummins Waste Heat Recovery



DoE Contract DE-FC26-05NT42419

Chris Nelson – Cummins - Principle Investigator

Roland Gravel – DoE HQ - Technical Manager

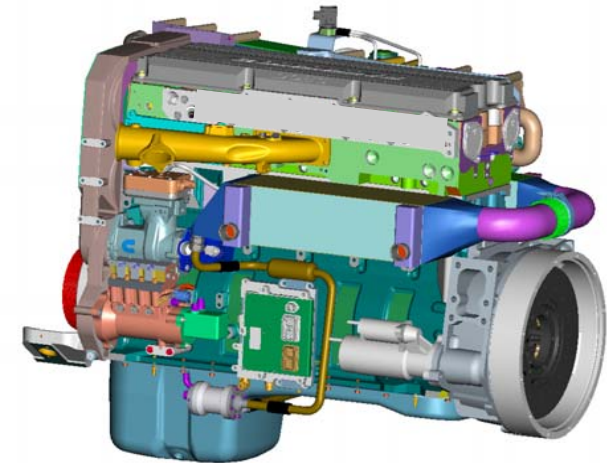
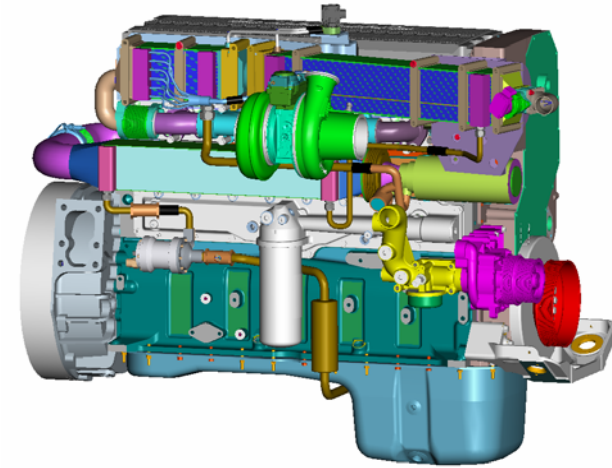
Ralph Nine – DoE NETL – Contract Manager

Project Goals are:

- **10% Fuel Efficiency Improvement**
- **Reduce or eliminate the need for increased heat rejection capacity**

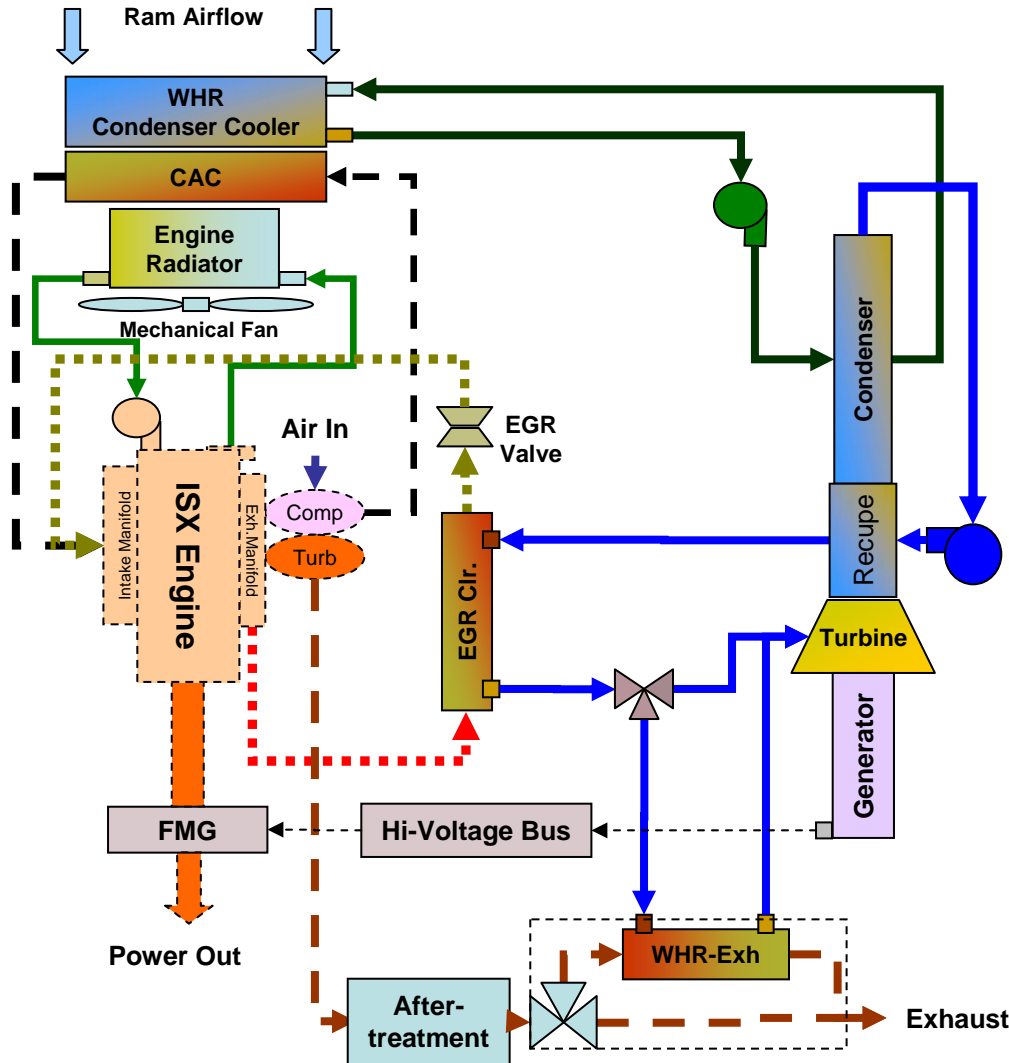
Project Concept:

Application of a Rankine Cycle to extract waste Heat energy from the Cummins ISX EGR and Exhaust Gas streams. Provide recovered energy as electricity to a Flywheel Motor Generator (FMG) and supplement engine power





Cummins Waste Heat Recovery



**Extracts Waste EGR Heat
Takes in Waste Exhaust
Heat when off-peak**

R245fa working fluid

**~8% efficiency benefit
across the drive cycle.**

**>8% improvement at
cruise**

**'More Electric' Accessories
will add 2% benefit**