

# Clean Air Technology Roadmap

	2012	2013	2014	2015	2016	2017	2018-2020	2021-2025
<b>Criteria Pollutants</b>	Hydrocarbon Lean NOx Catalyst (ethanol reductant) T.R.U.E.-Clean® Mini Multiwrap Converter Mat	Euro VI CTrk On-Road Aftertreatment System Stationary Engine Aftertreatment Common Rail Urea Dosing System Tier 4 Locomotive Aftertreatment Natural Gas Aftertreatment	Gasoline Particulate Filter Retrofit Marine Aftertreatment System Air-Assisted Dosing System China Low-Cost SCR System Large 24" Diameter SCR XNOx Gen 3	Large Engine Turnkey SCR System Large Engine Urea Dosing (<3 MW) Large Engine Soot Blower	XNOx Gen 4 Low Pressure EGR Valve Mixers for Compact Designs Advanced Controls for SCR Coated DPF Large Engine Air Assisted Lance for Urea Injection	Gaseous Ammonia Generator High Performance SCR Mixer Large Engine Urea Dosing (<10 MW) EURO VI+ CTrk Aftertreatment System	XNOx Next GEN Active Diesel Thermal Management HC-LNC (ULSD reductant) Low Pressure EGR / cGPF Ultra High Efficiency SCR System Selective NOx Adsorber (SNA)	Low Temp deNOx Catalyst Alternative SCR Advanced Diesel Aftertreatment Controls with OBD
<b>Fuel Economy / Greenhouse Gases</b>	Fabricated Manifold Low Backpressure Valve Muffler	Integrated Manifold & Turbocharger China Low-Cost Light Vehicle System E-Valve for Cylinder Deactivation			Waste Heat Recovery – Heat-2-Heat (HEX)	CTrk Fabricated Manifold Ultra Lightweight Aftertreatment System	Waste Heat Recovery – Organic Rankine Cycle CTrk Modular E-Valve Natural Gas Aftertreatment System for Methane Slip	Waste Heat Recovery – Thermoelectric Generator (TEG) Waste Heat Recovery – Thermoacoustic Converter (TAC)
<b>Acoustics</b>	Low Backpressure Valve Muffler	E-Valve for Acoustics	Software-based Signature Sound System Exhaust Isolator Cartridge Mount Mini Shear Hub Exhaust Isolator Modular Coulomb Exhaust Damper	Next Gen Exhaust Isolators	Next Gen High Performance Acoustic Valve	Modular Acoustic E-Valve	Active Noise Cancellation	
<i>In production or production ready</i>					<i>In development – production ready in 2016 - 2025</i>			