

The Industry Role

Development of NGEC PRIIA
Compliant Technical Specifications and
Equipment Standardization Evaluation
Process

Larry E. Salci, Principal
SalciConsult



The NGEC will provide national leadership in standardization,
acquisition, financing and management of passenger rail equipment.

Who Are Industry Participants

- Tier I Manufacturers– Rolling Stock OEMs –Car builders
- Tier II – Propulsion/Traction, Components and Electronic Systems
- Tier III Materials and Parts Suppliers
- Consultants –Subject Matter Experts (SMEs)
- Over 240 Industry Members of NGEC
- Goal-Development of standardized specifications for procurement of intercity rail equipment.



The NGEC will provide national leadership in standardization, acquisition, financing and management of passenger rail equipment.

Tier I Car builders

- 10 Car builder and Locomotive Manufacturers participated in the development of the Technical Specifications and Standardization Evaluation Process
- Provide carshell, systems design and integration final assembly, proof-of-design tests, and acceptance tests and vehicle commissioning
- OEMs with established US Design and Manufacturing facilities with knowledge of US Intercity Passenger Rail Market Size and Customer Base



Tier II Suppliers

- Propulsion/Traction Components
 - Prime Movers (locos) and related power transmission components
 - Truck frames, cast & fabricated structures
 - Brake Systems
 - Wheel and Axle Sets
 - Undercarriage castings, bearings, suspension systems
 - Electronic Systems: Comm., Operator Control, Security, and Integrated Software



Tier III Suppliers

- Tier III Materials
 - Stainless Steel, Iron, LAHT, Aluminum, Glass, Plastic, FRP, rubber, specialty paints and sealants
- Tier III Parts
 - Air compressors, blowers/motors, wire and cable, gears, shafts, printed circuit boards, rectifiers, generators, sensors, switch gear, voltage regulators/convertors



Industry Consultants

- Subject Matter Experts with knowledge and expertise in:
 - Carbody structures and CFR Structural tests
 - Component expertise, doors, HVAC, lighting, couplers, electrical cabinets and wire schematics
 - Project Management, critical path schedules, CDRLs, test procedures, test plans, vehicle commissioning
 - Industry Standards (APTA, AAR, Industry Guidelines and Practices)
 - FRA Office of Safety and Title 49 CFRs and ADA



Industry Role in Development of Technical Specifications

- Development of Standardized 125 mph Specification Criteria:
 - Operational/Performance/Interoperability
 - Safety, Regulatory and Industry Standards
 - Reliability and Maintainability Requirements
 - Passenger Amenity Requirements
 - Communication and Electrical Controls
 - Environmental Initiatives
 - Testing and Acceptance Criteria



Industry Role in Standardization of Technical Specification Development

- NGEC Executive Board created Standardization Working Group who evaluated several aspects:
 - Potential Benefits of Standardization
 - What can standardization cover?
 - Acquisition vs. Life Cycle Costs
 - Maintenance commonality practices
 - Manufacturer's/Supplier perspective
 - Process of Candidate Component Selection for Standardization



Industry Role in Standardization of Technical Specification Development

- Working Group Identified Several Levels of Standardization:
 - Performance Standards
 - Interface Standards
 - Interoperability Standards
 - Interchangeability Standards
 - Design Standards



NGEC Working Group Standardization Pilot Program-Candidate Systems

- WG Identified Seven Pilot Program Candidates
 - Wheelsets, Brake discs, shoes, valves, Seats, Windows, and HVAC, but final decisions became problematic due to industry participation, and supplier design rights and proprietary issues.
- Working Group, should be reviewed by an independent third party to avoid supplier conflicts



Pilot Program- Independent Review of Standardization Process

- Recommendations:
 - **Large Systems/High Usage Components** – standardization should focus on both high dollar systems and high usage components over life of vehicle
 - **Modular Design** – Standardization of systems should use a top down approach by the car builder through the design phase, and cross reference opportunities for vehicle platforms for all NGEN vehicles
 - **Key Interface Definitions** – Define standardization as key interface, form, fit, function and interchangeability, not identical component design



Pilot Program – Independent Review of Standardization Process

- **Two Step Procurements** – Procurement process that provides for two separate evaluation processes, technical and price, using weighted criteria method vs. low bid will enhance standardization process, low bid runs counter to total cost of ownership
- **Industry Funding** – sufficient federal/state funding creates order volume, attracts competition, provides for economies of scale.



Pilot Program – Independent Review of Standardization Process

- How should concept of standardization be defined?
 - **Modular Design** – starts with vehicle platform architecture, precisely define space envelope and weight limits, detail design interface requirements (form, fit, function) and interchangeability. This approach protects supplier intellectual property rights
 - **Top Down Approach** – Standardization utilizing top down approach should be defined starting at the highest system level and defined to lowest component level.



Pilot Program – Independent Review of Standardization Process

- **Both Systems and Components** – The vehicle platform should be used to guide the customer/owner and a listing of key systems/components should be defined jointly with all involved disciplines, including system component supplies inputs



The NGEC will provide national leadership in standardization, acquisition, financing and management of passenger rail equipment.

Standardization Process Summary

- **RFP Starts Standardization Process**-NGEC has developed 6 new technical specifications
- **Technological Innovation** – utilizing modular approach and key interface definitions enhances technological innovation and protects proprietary rights
- **Best Value Approach** – Total Cost of Ownership, begins with procurement evaluation phase and requires verification through operational and maintenance costs over the life of vehicle systems and components

