



Complete Fuel Cell Stack Development from Subcomponent Design to Full Stack Validation

THE CHALLENGES

In addition to increasingly stringent vehicle emissions regulations, the transportation industry is facing many other challenges such as:

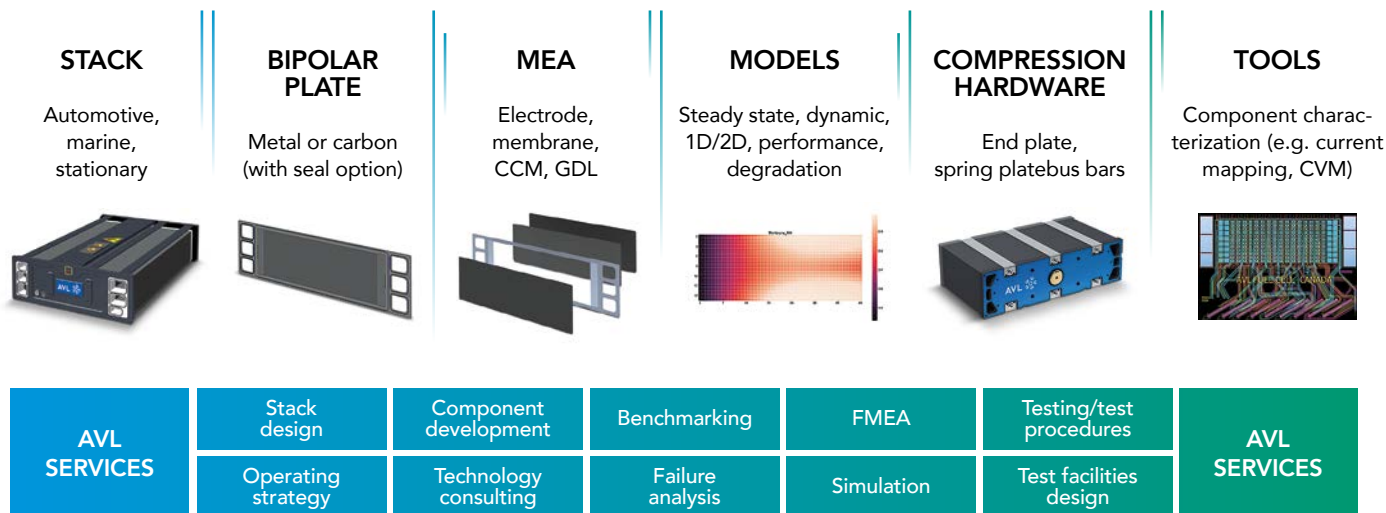
- Reducing noise and vibration for vehicles operating near populated areas
- Designing more efficient vehicles
- Responding to demand for increased range in electric vehicles
- Demanding faster refueling, particularly in high availability applications
- Reducing fuel costs
- Lowering the cost of commercial vehicle ownership

THE AVL SOLUTION

We offer a full suite of fuel cell engineering and design services, from fuel cell stack development to their integration into fuel cell systems, powertrains and vehicles.

We can:

- Design, integrate, simulate and offer testing support for subcomponents, stacks and fuel systems
- Create stack architectures suited to specific applications
- Model stack performance for trade-off studies with the fuel cell system
- Design and optimize unit cells
- Provide benchmarking and material selection for stack components
- Build, test, and analyze prototypes
- Partner at any scale, from start-ups to OEMs, and leverage our global supply base



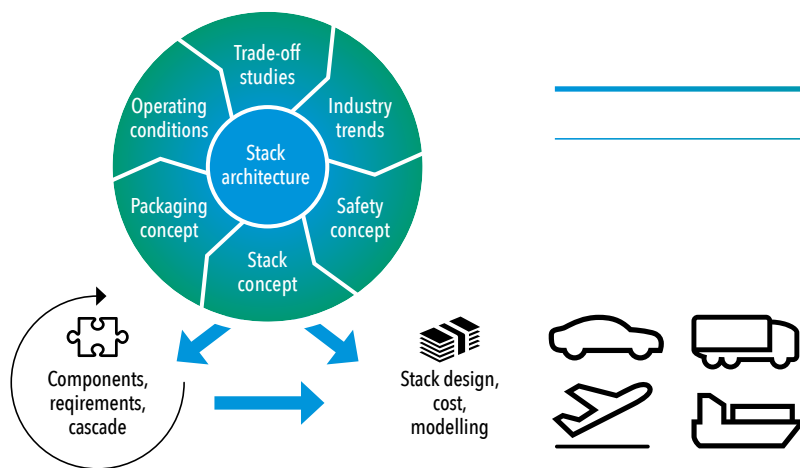
AVL FUEL CELL DEVELOPMENT SERVICES IN DETAIL

- Feasibility assessment and trade-off studies
- Stack and unit cell design
- Verification and validation plans
- Detailed program management, from complete planning of fuel cell stack development projects to test facilities and infrastructure design
- State-of-the-art simulation – from subcomponent to full stack for mechanical, chemical and thermal performance – including 1+1D, 1+2D, chemical and mechanical degradation, and dynamic performance and hydration
- Safety concept, including assessments against codes and standards and failure modes effect analysis (FMEA)
- Production planning
- Supplier evaluation

THE ADDED VALUE

AVL is an independent engineering service and one-stop solution provider with extensive fuel cell development experience in the transportation and stationary markets. With our comprehensive know-how of vehicle development and system integration, we can:

- Use 3D-simulation tools (AVL FIRE™) in all stages of fuel cell development process, from cell components to module
- Apply system level simulation tools (AVL Cruise™) for powertrain optimization based on actual operating load cycles
- Reduce development costs due to advanced simulation capabilities
- Provide extensive in-house testing capabilities from subcomponent to full scale



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FIND OUT MORE

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