Since 1980 CNR-ITAE has a worldwide acknowledged experience in all the relevant research areas related to fuel cell technology, from materials development to the stack and system design up to their integration. Its experience covers portable, automotive, stationary, marine and space applications. It also has a long history of participation in EU-funded projects, both as a partner and coordinator.

- development of catalysts and supports with a reduced precious metal loading and an increased activity, durability and lower cost;
- extension of MEAs operating range and durability;
- scaled-up fabrication processes for production of membranes, electrodes, MEAs and bipolar plates.

Figure 1: Scaled-up membrane at CNR-ITAE with a maximum dimension of 600 cm² (left), MEA with a maximum active area of 200 cm² (right).

Figure 2: 5kW H₂/air PEFC stack for marine application.

Its R&D activity in PEFCs topic include:
- development of new polymer electrolytes, membranes and ionomers with increased conductivity, mechanical and chemical stability and reduced material costs;
- integration of membrane and electrodes to optimize mechanical and chemical interactions of catalyst, support and ionomer into MEA;

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