

3.0 Technical Plan

This section of the Plan provides a detailed outline of the various activities occurring within the technical sub-programs of the Fuel Cells Technologies Program (FCT Program). The technical sub-programs of the FCT Program are as follows:

3.1 Hydrogen Production

3.2 Hydrogen Delivery

3.3 Hydrogen Storage

3.4 Fuel Cells

3.5 Manufacturing R&D

3.6 Technology Validation

3.7 Hydrogen Safety, Codes and Standards

3.8 Education and Outreach

3.9 Market Transformation

For each section, a brief introduction is followed by the specific goal and objectives of each sub-program. The remainder of the section presents the sub-program's strategy for achieving success and measuring progress. This begins with an overview of the technical approach and review of the current activities within the sub-program. Next, each section lays out specific targets that will lead toward the objectives, the barriers to achieving these targets, and the specific tasks and milestones used to direct their efforts and gauge their progress.

Activities within each sub-program must be coordinated and integrated to achieve the technology readiness goals of the FCT Program. Interrelationships among all sub-programs, including Systems Analysis and Systems Integration, are represented in Figure 3.0.1. Specific inputs and outputs among sub-programs are identified in the milestone charts and tables in each section. Systems Analysis and Systems Integration (see Chapters 4 and 5) will be used to identify, analyze, and evaluate these complex interdependencies and to guide decision making for the FCT Program Manager. Program Management and Operations are covered in Chapter 6.

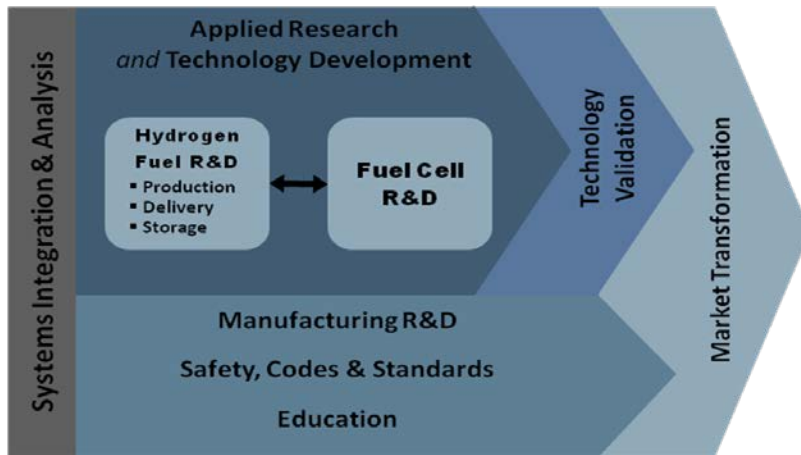


Figure 3.0.1. Fuel Cell Technologies Program Interrelationships

Each sub-program is also actively involved in coordination activities with the DOE Hydrogen and Fuel Cells Program, which includes hydrogen and fuel cell research and development efforts within DOE's Offices of Energy Efficiency and Renewable Energy (EERE), Nuclear Energy, Fossil Energy, and Science. Some EERE Programs sponsor research on technologies that can be used to produce or use hydrogen. EERE includes the following programs:

- Wind and Water Power Program
- Geothermal Technologies Program
- Solar Energy Technologies Program
- Biomass Program
- Vehicle Technologies Program
- Building Technologies Program
- Federal Energy Management Program
- Weatherization and Governmental Program
- Advanced Manufacturing Office

Hydrogen can play a key role in the realization of several of these technologies, and will benefit from the relevant research and development taking place. Advanced electrolysis technologies, conversion of biomass to hydrogen, polymer electrolyte membrane fuel cell development, and application of hydrogen for stationary energy needs are examples of areas in which collaboration among the FCT Program and other EERE Programs is vital to achieving the technical targets identified in this chapter.