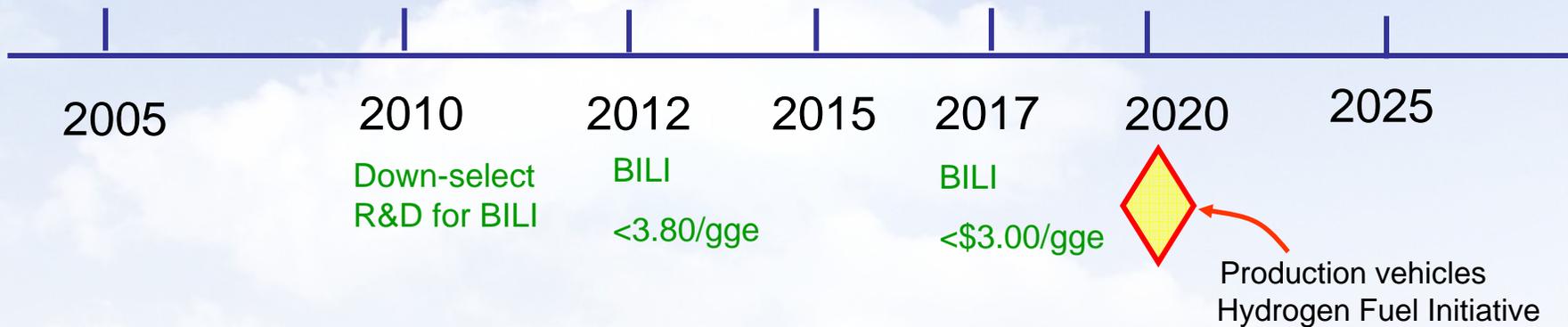


Bio-Derived Liquids to Hydrogen Distributed Reforming Targets

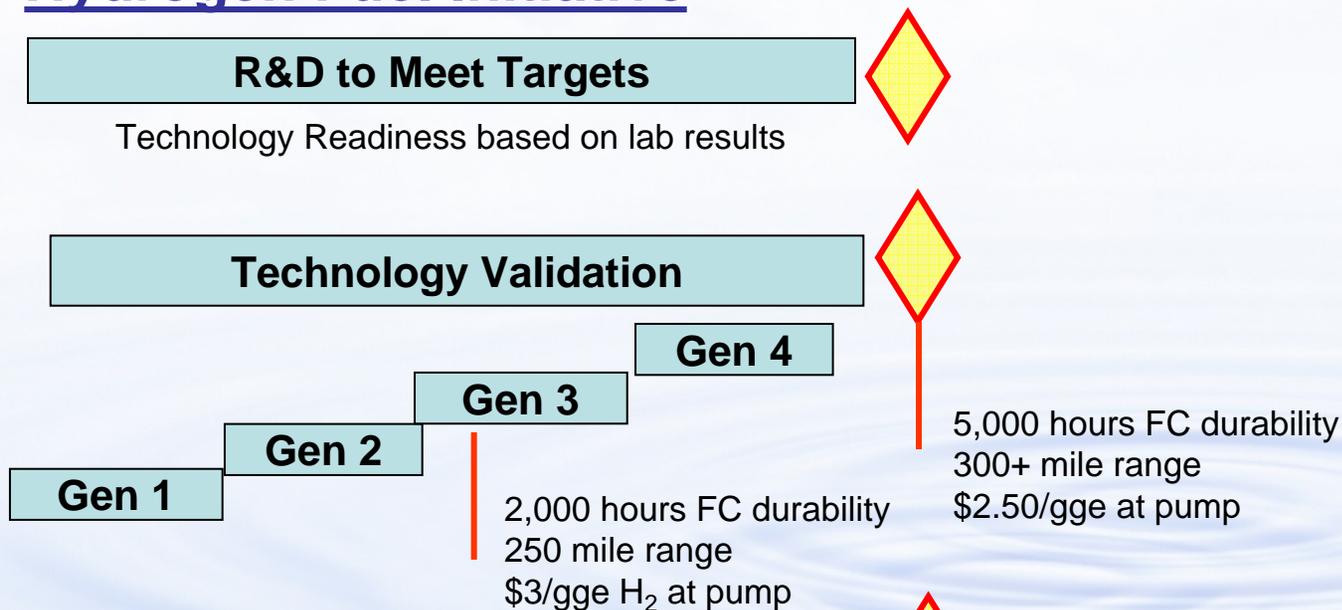


Arlene F. Anderson
Technology Development Manager
October 24, 2006
Bio-Derived Liquids to Hydrogen
Distributed Reforming
Working Group (BILIWG) Kick-Off

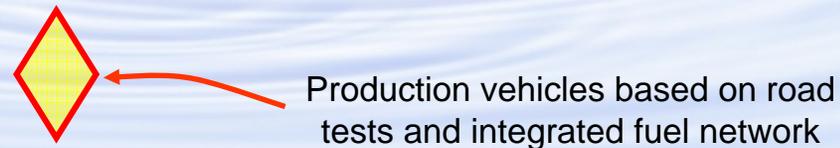
2010-2025 BILI Milestones & Scenarios



Hydrogen Fuel Initiative



Alternative Scenario Analyses



Targets

Table 3.1.2. Technical Targets: Distributed Production of Hydrogen from Natural Gas^{a, b, g}

Characteristics	Units	2003 ^c Status	2006 ^{d,e,h} Status	2010 ^d Target	2015 ^d Target
Production Unit Energy Efficiency ^{f,i}	%(LHV)	65.0	70.0	72.0	75.0
Production Unit Capital Cost (Uninstalled)	\$	12.3M	1.1M	900K	580K
Total Hydrogen Cost	\$/gge H ₂	5.00	3.00 ^f	2.50	2.00

Table 3.1.3. Technical Targets: Distributed Production of Hydrogen from Bio-Derived Renewable Liquids^{a,b, e,h}

Characteristics	Units	2006 Status ^c	2012 Target ^c	2017 Target ^d
Production Unit Energy Efficiency ^f	%	70.0	72.0	65-75 ^g
Production Unit Capital Cost (Un-installed) ^c	\$	1.4M	1.0M	600K
Total Hydrogen Cost	\$/gge	4.40	3.80	<3.00

Cost Inputs

Table 3.1.3.A Distributed Bio-Derived Renewable Liquids H2A Example - Cost Contributions^{a,b,e,h}

Characteristics	Units	2006 Status ^c	2012 ^c	2017 ^d
Production Unit Capital Cost Contribution ^b	\$/gge	0.75	0.45	0.40
Storage, Compression, Dispensing Capital Cost Contribution ^h	\$/gge	0.75	0.55	0.35
Fixed O&M Cost Contribution	\$/gge	0.60	0.50	0.40
Feedstock Cost Contribution	\$/gge	2.10	2.10	1.55
Other Variable O&M Cost Contribution	\$/gge	0.20	0.20	0.30
Total Hydrogen Cost	\$/gge	4.40	3.80	3.00

“Forecourt Production Modeling Tool”

http://www.hydrogen.energy.gov/h2a_production.html.

BILI Tasks

- Analyze and research options for alternative renewable feedstocks (e.g., ethanol, methanol, sugars, sugar alcohols, bio-oils, bio-based Fischer Tropsch liquids) for distributed production.
- Utilizing the technology concepts developed for distributed natural gas reforming, develop efficient, integrated, compact, robust process technology for bio-derived liquid feedstocks.
- Explore novel technology for reforming bio-derived renewable liquid feedstocks that could result in a cost breakthrough.

Bio-Derived Liquids to Hydrogen Distributed Reforming Working Group (BILIWG)

- Comprised of bio-derived liquids to hydrogen distributed reforming researchers
- The main objective is to review research with a collective focus on achieving DOE technical targets and providing feedback to DOE regarding RD&D efforts. This will be achieved through information sharing and where feasible collaborative research efforts.

Production Tech Team

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