

# VA-MD-DC Hydrogen Education for Decision Makers

Virginia Department of Mines, Minerals, and Energy

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Virginia Clean Cities

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Project ID #

ED011

*This presentation does not contain any proprietary, confidential, or otherwise restricted information*

# OVERVIEW

## Timeline

- September 30, 2008
- September 30, 2011
- Percent Complete: 70%

## Partners

- Project Lead: Virginia Clean Cities / DMME, Division of Energy
- Strategic Partners:
  - Los Alamos National Laboratory
  - NEED & GM
  - MotorWeek
  - University of Maryland-College Park, Virginia Tech, JMU
  - Local government Clean Cities stakeholders & many others

## Barriers

- Barriers (Ed. Plan Related)
  - Mixed Messaging
  - Regional Differences
  - Difficulty Measuring Success
- Barriers (Findings)
  - Lack of available/relevant demonstrations
  - Information overload / Decision maker and expert time demand

## Budget

- DOE Share: \$227,405
- Contractor Share: \$73,000
- FY10 Fed. Share: \$37,405

# OBJECTIVES

*The goal of the project is to increase a targeted audience's understanding of hydrogen and fuel cells, including early market applications, and to provide specific examples of actions that the targeted audience - state and local government leaders - can take to support the development and use of hydrogen and fuel cell technology leading to better understanding of the community benefits that can result.*

- Conduct up to a dozen in-person workshops by technical experts and professional educators
- Produce video resources for public television, seminar use, and DOE/general public
- Use hardware demonstrations when possible and provide real-world examples of technology
- Produce electronic “magazine” articles on hydrogen technology demonstrations and other instructional project deliverables

# APPROACH

- Team with local government and select appropriate demonstration hardware
- Have technical expert and professional educator instructors
- Use NEED instructors and high school students for “table talk” demo sessions
- Have ride-n-drive
- Shoot a wide variety of H2/FC research and demonstrations for video segments. Mass market video segments and “Flux Report”
- Utilize media and ensure sound talking points are provided
- Utilize “new media” approaches (Facebook, Twitter, YouTube)
- Foster communication with policy makers

# MILESTONES Cont.

#	Milestone
1	Finalize seminar venues, dates, instructors, tours, demonstrations, and outreach partnerships (Task 2)
2	Produce articles on hydrogen or fuel cell demonstrations (Task 4)
3	Web products released (Task 3)
4	Produce and update curriculum (Task 1)
5	Conduct seminar (Task 2)
6	Conduct materials review and feedback sessions (Task 5)
7	Produce newsletter (Task 5)
8	Report to DOE (Task 6)
9	Produce MotorWeek video segment (Task 4)
10	Conduct electronic and telephone follow-up surveys (Task 5)

Task	Subtask	Year 2 (2009-2010)								Year 3 (2010-2011)														
		Q5		Q6		Q7		Q8		Q1		Q2		Q3		Q4								
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1. Curriculum and Resource Development	Research hydrogen or fuel cell technology demonstrations																							
	Develop Hydrogen 101 instructional resources			4																				
	Develop demonstration instructional resources			4												4								
	Develop decision maker empowerment instructional resources			4			4												4					
2. Decision-Maker Training	Form relationships with organizations hosting complimentary meetings																							
	Develop event planning workshop template and detailed planning guidelines																							
	Research feasible venues, dates and partnerships																							
	Confirm demonstration site access and possible tour dates																							
	Determine instructor scheduling																							
	Develop seminar schedule																							
	Plan seminars															1			1					
	Purchase inexpensive portable demonstrations for seminars																							
	Conduct seminar		5	5		5	5				5	5					5	5				5	5	

# MILESTONES Cont.

		Year 2 (2009-2010)												Year 3 (2010-2011)											
		Q5			Q6			Q7			Q8			Q1			Q2			Q3			Q4		
		Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
3. Website Development and Outreach	Web page development and updating	[Shaded]																							
	Develop plan for webcasting seminars	[Shaded]																							
	Podcast seminar and post to webpage	[Shaded]																							
	Post newsletter to website and monitor blog posts	[Shaded]		[Shaded]	[Shaded]			[Shaded]			[Shaded]			[Shaded]			[Shaded]			[Shaded]			[Shaded]		
	Produce expanded resource section with companions to seminar content																								
4. Video Resource Development	Research and produce articles on hydrogen or fuel cell technology demonstrations		[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
	Work with demonstration site managers on possible MotorWeek content																								
	Produce MotorWeek video segment																								
5. Evaluation and Follow-up	Develop surveys	[Shaded]																							
	Administer before and after surveys	[Shaded]																							
	Input survey data into database		[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
	Assess results and fine-tune seminar content																								
	Follow-up phone and electronic survey of seminar attendees	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
	Produce newsletter	7			7			7			7			7			7			7			7		
	Conduct materials review and feedback sessions with DOE		[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
6. Management and Reporting	Gather information from partners for reports		[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
	Complete routine quarterly reports	8			8			8			8			8			8			8			8		
	Management		[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]	[Shaded]
	Complete final report																								

# TECHNICAL SUCCESS/PROGRESS/RESULTS

## Cumulative Milestones:

1. Seminar and other logistics: Developed key partnerships, worked to develop more in DC/MD

*Status: Ongoing activity*

2. Articles: Produced 5 articles (4 required)

*Status: Completed July 2010*

3. Web Products: Website, Facebook, YouTube, Twitter

*Status: Ongoing Activity*

4. Curriculum

*Status: 3 sets of curriculum complete, Webinar complete summer 2011*



# TECHNICAL SUCCESS/PROGRESS/RESULTS

## Cumulative Milestones Cont'd:

### 5. Seminars: Up to 12 required

*Status: 8 in-person held, 4 webinars on schedule (67% complete)*

*- 2/25/11 @ JMU (40 Attendees)*

*- 3/11/11 @ UMD (19 Attendees and 25 viewers of online archived video version online)*

*- 3/23/11 @ Fairfax Government Center (46 Attendees)*

*Attendees for these events have included reps. from state and federal agencies, fuel cell and alt. fuel companies, universities, local governments*

### 6. Materials Review and Feedback

*Status: Improved curriculum after every seminar based on feedback.*





# TECHNICAL SUCCESS/PROGRESS/RESULTS

## Cumulative Milestones cont'd:

### 7. Newsletters

*Status: Published quarterly*

### 8. Reporting

*Status: Submitted via DMME quarterly*

### 9. MotorWeek segments: 3 total required

*Status: 2 of 3 produced and aired; third to be aired June 2011*

### 10. Follow-up and Evaluation

*Status: Surveys indicated audience understanding increased*

- Survey response at all events since last AMR suggest that presentations have been useful in learning basics of hydrogen, even for attendees outside of the “industry”*
- Consistent suggestion has been a more robust first-responder aspect*

## MOTORWEEK Y2 VIDEO

### Emerging Hydrogen Markets

[http://www.youtube.com/watch?v=rG8EjjGAUjU  
&feature=channel\\_video\\_title](http://www.youtube.com/watch?v=rG8EjjGAUjU&feature=channel_video_title)

#### Expected Audience

- MotorWeek Viewership: 4 million viewers & 6 repeats per episode
- VCC stakeholders: Web and social media, DVDs available at all VCC events
- General public: PBS and Discovery HD Theatre
- Local/state/federal gov't and industry decision makers via workshops and video distribution
- Added to the Clean Cities MotorWeek DVD segment handout sent to all coalitions and distributed at trade shows

# FUTURE WORK

- Seminars/Webinars

*Status: 4 left in 2011, to incorporate more innovative approaches to reach audience including live streaming video of webinars*

- Follow-up & Evaluation

- Demonstration

*Status: Student theses projects completed by May 2011; GM continued partnership*

- First responders training

*Status: To be included in webinar series*

# COLLABORATIONS TO-DATE

- Virginia Department of Mines, Minerals, and Energy (Prime)
- Virginia Clean Cities at JMU (Sub, Project Manager)
- Los Alamos National Laboratory
- MotorWeek
- Universities: University of Maryland, Virginia Tech, JMU
- National Energy Education Development Program (NEED)
- DDSP/DLA/LMI
- NHA
- DOE Clean Cities
- State Agencies: VA Dept of Environmental Quality, Science Museum of Virginia, Maryland Energy Administration, Wash Metro Council of Governments, etc.
- Orgs representing local govts: VML, VaCo, ICLEI, Climate Communities
- Other industry organizations: Virginia Transit Association, Petroleum Marketing and Grocers Associations
- Mid-Atlantic Diesel Collaborative
- OEMs: GM, Honda, Mercedes, Proterra, etc.
- Local governments
- Other non-profits
- Private Business: Hampton Roads Hydrogen, Marz Industries
- Policy makers (legislative input)
- Other DOE funded demonstration projects for Motorweek shoots

# SUMMARY

- Barriers
  - Difficult to demonstrate to decision makers how they can support emerging markets when there aren't many local examples
    - We have partnered with JMU on student fuel cell vehicle build demo to address and produced 2 of 3 MotorWeek videos.
  - Economic recession limited decision makers travel budgets in both VA and MD.
    - Responding to this by filming seminars and archiving online
- Seminars proved to increase audience understanding of hydrogen/fuel cells as proven by surveys/quizzes
- Video segments have been very useful
- Innovative strategies to reach target audience have helped
- JMU partnership proving very valuable
  - Supporting future leaders in hydrogen industry through student project funding

# CONTACT INFO

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