

REFUEL: SAN DIEGO REGIONAL ALTERNATIVE FUEL COORDINATING COUNCIL

MEETING NOTICE AND AGENDA

Date: Wednesday, July 15, 2015

Time: 2:00 p.m. to 4:00 p.m.

Location: Center for Sustainable Energy
9325 Sky Park Court, Suite 100
San Diego, CA 92123

Staff Contact: Kevin Wood
Tel: (858) 244-7295
Email: kevin.wood@energycenter.org

AGENDA HIGHLIGHTS

- REFUEL SUBCOMMITTEE UPDATES
- SECTOR-SPECIFIC TOOLKITS UPDATE
- REGIONAL BARRIERS TABLE UPDATE

In compliance with the Americans with Disabilities Act (ADA), CSE will accommodate persons who require assistance in order to participate in Refuel meetings. If such assistance is required, please contact CSE at (858) 244-1177 at least 72 hours in advance of the meeting.



www.sdcleancities.org

www.sandag.org/refuel

Refuel

Wednesday, July 15, 2015

ITEM #		RECOMMENDATION
1.	WELCOME AND INTRODUCTIONS	
2.	PUBLIC COMMENT	
	Members of the public shall have the opportunity to address Refuel: San Diego Regional Alternative Fuel Coordinating Council on any alternative fuel (AF) issue that is not on this agenda. Public speakers are limited to three minutes or less per person. Refuel members may provide information and announcements under this item.	
REPORT ITEMS		
+3.	APPROVAL OF MEETING MINUTES	APPROVE
	Refuel: San Diego Regional Alternative Fuel Coordinating Council (Refuel) is asked to review and approve the minutes from its April 16, 2015 meeting.	
+4.	SUBCOMMITTEE UPDATES	INFORMATION
	Staff will provide a summary and discuss next steps resulting from each of the Refuel subcommittees that have met since April's Refuel Meeting: Natural Gas (4/22/15), Joint Propane and Natural Gas (6/11/15), and Biofuels (7/9/15). Staff also will provide a summary of any other meetings where Refuel was discussed.	
5.	LEGISLATIVE UPDATE	INFORMATION
	There has been a lot of activity in the legislature and at the State around alternative fuels. Staff will provide a brief update on conversations, workshops, and bills relevant to Refuel.	
6.	CLEAN VEHICLE REBATE PROJECT UPDATE	INFORMATION
	The Clean Vehicle Rebate Project (CVRP) provides zero-emission and plug-in hybrid light-light duty vehicle rebates. Brett Williams, CSE, will provide an update on CVRP. More information is available at: www.energycenter.org/cvrp .	
+7.	IMPLEMENTATION OF THE REGIONAL PLUG-IN ELECTRIC VEHICLE READINESS PLAN	DISCUSSION
	The California Energy Commission awarded SANDAG, in partnership with CSE, funding to implement recommendations from the adopted San Diego Regional Plug-in Electric Vehicle (PEV) Readiness Plan, and further regional deployment of PEVs and infrastructure. Allison Wood, SANDAG, and Kevin Wood, CSE, will provide information and lead Refuel in a discussion about the project.	
8.	SECTOR-SPECIFIC TOOLKITS UPDATE	DISCUSSION
	One of Refuel's primary deliverables is the development of sector-specific toolkits. These toolkits will include alternative fuel resources, best practices, training, available funding, and other relevant information specific to the needs of local governments, fleet owners/operators, fuel wholesalers/retailers, vehicle dealers, and the general public. Staff will provide an update on the development of the toolkits for discussion by Refuel.	

ITEM #		RECOMMENDATION
+9.	SAN DIEGO REGIONAL BARRIERS TO ALTERNATIVE FUEL DEPLOYMENT UPDATE	DISCUSSION
	<p>Ongoing Refuel activities and meetings continue to inform the alternative fuel barriers table. This table is a working document meant to be modified and updated as deliverables are met and barriers are addressed. Staff will provide an update since the last meeting for continued discussion by Refuel.</p>	
+10.	UPCOMING MEETING DATES	INFORMATION
	<p>Staff will share information on upcoming subcommittee meeting dates and provide an updated meeting schedule.</p>	
11.	MATTERS FROM MEMBERS	INFORMATION
	<p>Time permitting; Refuel members are encouraged to discuss additional topics of interest.</p>	
12.	ADJOURNMENT	

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REPRESENTATION		Name	MEMBER/ALTERNATE
South County Subregion	City of Chula Vista	Brendan Reed	Member
North County Coastal Subregion	City of Carlsbad	Mike Grim	Member
	City of Oceanside	Mo Lahsaie	Alternate
North County Inland Subregion	City of Escondido	Jeff Wyner	Member
East County Subregion	City of Santee	Kathy Valverde	Member
City of San Diego		Jacques Chirazi	Member
County of San Diego		Susan Freed	Member
San Diego Association of Governments		Anna Lowe, Co-Chair	Member
		Susan Freedman	Alternate
San Diego Regional Airport Authority		Paul Manasjan	Member
Caltrans, District 11		Chris Schmidt, Chair	Member
Unified Port District of San Diego		Michelle White	Member
		Kellie Carlson	Alternate
San Diego Gas & Electric		Randy Schimka	Member
		Greg Haddow	Alternate
Center for Sustainable Energy		Colin Santulli	Member
University of California, San Diego		Jim Ruby	Member
Miramar College, ATTE Program		Greg Newhouse	Member
San Diego County Air Pollution Control District		Nick Cormier	Member
ADVISORY MEMBERS			
City of Coronado		Bill Cecil	Advisory
City of Del Mar		Kristen Crane	Advisory
City of El Cajon		Matt Lyer	Advisory
City of Encinitas		Bryce Wilson	Advisory
City of Imperial Beach		Chris Helmer	Advisory
City of La Mesa		Howard Lee	Advisory
City of Lemon Grove		Mike James	Advisory
City of National City		Martin Reeder	Advisory
City of Poway		Eric Heidemann	Advisory
City of San Marcos		Lisa Fowler	Advisory
City of Vista		Lyn Dedmon	Advisory
Metropolitan Transit System		Sharon Cooney	Advisory
North County Transit District		TBD	Advisory
Department of Defense/Military		David Powell	Advisory

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COORDINATING COUNCIL**

REPRESENTATION	Name	MEMBER/ALTERNATE
San Diego Regional Clean Cities Coalition	Kevin Wood	Advisory
Energy Policy Initiatives Center	Nilmini Silva-Send	Advisory
University of San Diego	Michael Catanzaro	Advisory
San Diego Regional Chamber of Commerce	Mike Evans	Advisory
CleanTECH San Diego	Jason Anderson	Advisory

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July 16, 2015

APRIL 16, 2016 MEETING MINUTES

File number 3200900

Action Requested: APPROVE

1. WELCOME AND INTRODUCTIONS

Chair Chris Schmidt (Caltrans), called the meeting to order at 1:15 p.m. and welcomed everyone to the meeting.

2. PUBLIC COMMENT

There was no public comment at this time.

3. APPROVAL OF MEETING MINUTES (APPROVE)

Jeff Wyner (City of Escondido) motioned to approve the meeting minutes from January 15, 2015, Kellie Carlson (San Diego Unified Port District) seconded the motion. The motion carried without opposition.

4. SUBCOMMITTEE UPDATES (INFORMATION)

Anna Lowe (San Diego Association of Governments [SANDAG]) informed Refuel that since the meeting on January 15, 2015, there have been two subcommittee meetings: Biofuels and Electricity.

Ms. Lowe described highlights of the Biofuels subcommittee meeting, which occurred on January 26, 2015. At the meeting, there was representation from New Leaf Biofuel and Pearson who came to provide a broad overview of biofuels in the region. Ms. Lowe said that currently there are nine E85 and three E20 stations publically available in the region, and an additional four E85 to come later this year. The cost of permitting and fuel tank requirements for biofuels make installing infrastructure relatively cost prohibitive. Ms. Lowe also noted that there will be a case study developed about the City of Carlsbad and the fire marshal pertaining to the permitting of above ground storage tanks.

Ms. Lowe described highlights of the second Electricity subcommittee meeting, which occurred on March 12, 2015. At the meeting, there were several updates about EV infrastructure in the region. Car2go provided updates about public charging installations at two multi-unit dwellings (MUDs) in the neighborhood of Pacific Beach. Ms. Lowe noted that the County of San Diego described a unique business model for getting chargers into County facilities, which could be mirrored. SANDAG provided an update for the chargers installed at transit stations Sabre Springs and Del Lago. The City of San Diego reported to move forward with OpConnect to install up to 41 chargers in parks and recreation locations. Finally, Ms. Lowe noted that the California Energy Commission (Energy Commission) will release a grant opportunity for \$10 million for infrastructure in late spring/early summer.

Kevin Wood (San Diego Regional Clean Cities Coalition [SDRCCC]) provided highlights of the hydrogen event, which occurred on April 2, 2015. Mr. Wood noted that the goal of the event was to build familiarity and excitement for hydrogen fuel cell vehicles. The first hydrogen station will be built in the Caramel Valley area; however, some vehicle manufacturers will not start deploying vehicles in the region until there are at least two fueling stations available. Mr. Wood stressed that the lack of codes and standards to installing infrastructure is not

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a barrier in itself; the biggest barrier is that local governments do not know and are not familiar with these codes and standards.

Refuel members had the following questions and comments:

- Susan Freedman (SANDAG) mentioned that the SANDAG Energy Working Group (EWG) chair was very enthusiastic about the event. Hydrogen will appear as a discussion item at the next EWG meeting to find ways for the region to be well-positioned by the time a solicitation does come out for the installation of hydrogen stations.
- Mr. Wyner liked the event and said it offered a lot of good information. He noted that the biggest problem the region faces with hydrogen right now is that there is only one station being built in the region and the second will not be built for a while.
- Mr. Hogan asked if the manufacturers will sell the vehicles if you order it despite the lack of stations. Mr. Wood responded that they will not.
- David Powell (U.S. Navy) said that he would like to include Refuel in working group calls with the Marine Corps to discuss the potential of a hydrogen site on the base.
- Mike Evans (San Diego Regional Chamber of Commerce) suggested it would be a good idea for Refuel to send a formal letter to the State to encourage investment in the region.
- Mr. Wood noted that the Energy Commission does have priority investment areas – South Coast region and Bay Area.
- Chair Schmidt recommended the next time a Program Opportunity Notice (PON) from the Energy Commission is released, Refuel as an entity can comment on it. In the meantime, the region should know where infrastructure could go and who would be the right players to be involved.
- Colin Santulli (Center for Sustainable Energy [CSE]) noted that the same pot of funding that funds the Refuel committee also funds infrastructure grants; therefore, it would make sense for Refuel or EWG to convey the region as a proponent of hydrogen. One of the purposes of Refuel is to understand the region's relevant players and strengths as funding is applied for.
- Chair Schmidt recommended developing a case study of the Caramel Valley hydrogen station installation to encourage awareness of this fuel. Mr. Schmidt also suggested that staff write a summary of the hydrogen workshop.

5. REFUEL FORMATION DOCUMENTS (ACCEPT)

Chair Schmidt noted that the committee needs to re-adopt the formation documents because a non-member motioned to accept the documents at the meeting on January 15, 2015.

Mr. Wyner motioned to accept the formation documents, and Jacques Chirazi (City of San Diego) seconded the motion. The motion carried without opposition.

6. REGIONAL ALTERNATIVE FUEL ASSESSMENT UPDATE (DISCUSSION/ACCEPT)

Mr. Wood delivered a presentation about the Regional Alternative Fuel Assessment to the committee. He noted that throughout the presentation there will be highlights of what is in the assessment, and ultimately, the opinion of the group is solicited. Mr. Wood presented facts from the Alternative Fuel Survey: public agencies are most familiar with electricity and least familiar with hydrogen. Fleets are most familiar with natural gas, biodiesel, and propane.

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Mr. Wood asked what are the most effective ways to increase knowledge about fuels.

- Mr. Santulli responded that events like the hydrogen event are useful.
- Mr. Evans noted that there needs to be a way to see the benefits or quantify the benefits of using alternative fuels so that agencies can show that the market is moving towards alternative fuels.

Mr. Wood noted that only about 1/3 of cities have parking codes that deal with alternative fuel vehicles; additionally, there are few zoning codes that exist for alternative fuels. Mr. Wood asked what the readiness plan can do to support municipal staff to create friendly policies.

- Susan Freed (County of San Diego) noted that in the County, the departments are very siloed; therefore, it is difficult to answer the alternative fuel survey with complete accuracy. For example, many fleet people do not know much about policy and zoning. Ms. Freed recommends that public agencies should communicate better internally.
- Mr. Chirazi suggested that Climate Action Plans (CAPs) can encourage many departments to look at their goals and come together to create greater goals. Mr. Chirazi noted that a fact sheet could address CAPs in regards to transportation and create a dialogue among all cities/jurisdictions.
- Ms. Freed suggested infiltrating public fleet events and providing information about how to be more progressive by using alternative fuels. Ms. Freed stressed to disperse information in a way that public fleets can understand the benefits.
- Chair Schmidt noted it is important not to make alternative fuel adoption seem regulatory, but instead make learning about it seem like a professional development opportunity.
- Nick Cormier (San Diego Air Pollution Control District [SDAPCD]) agreed with Mr. Schmidt and said that they experience most success when they inform organizations/industry groups that grants are available and provide case studies of successful alternative fuel use. He added that word of mouth goes a long way.
- Ms. Freed suggested using awards as a way to entice fleets to adopt alternative fuels. She stressed that fleets need to be properly motivated.
- Chair Schmidt posed the question of whether municipal fleets or private fleets leading the way as models.
- Mr. Wyner noted that municipal fleets have multiple types of vehicles whereas private fleets usually only have one type.
- Bryce Wilson (City of Encinitas) said that he appreciates the regulatory aspect of persuading alternative fuel adoption. He noted that a way to get the City Council to accept such a change is to say that it is required by the State. Mr. Wilson noted that it is important to inform planning officials about other fuels outside of electricity.
- Mr. Cormier asked who the target audience is in the Assessment in which to tailor the toolkits. He stressed the benefits of using case studies.
- Joel Pointon (JPL Charge) stressed the benefits of convincing senior management to embrace change, because that is how changes will come into effect.
- Lyle Wright (City of El Cajon) noted that as a fleet manager, he is only following what he is told to do with limited funds. One city's model may not work well for other agencies, and that there is no cookie-cutter vehicle available that can work for all cities.

Mr. Wood noted that there are currently only three public biofuel stations, and discussed the projected infrastructure goals of the Energy Commission for the San Diego region. Mr. Wood sought the input of the committee on how public agencies and station developers can get more stations deployed.

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- Ms. Freed noted that in her experience there is a disconnect between what private fueling companies need and what public agencies can use.
- Mr. Chirazi said that the challenge for installing hydrogen stations is on the permitting side – permitting officials are not used to permitting for hydrogen stations because it is an emerging technology. Mr. Chirazi suggested that case studies or fact sheets can help make permitting processes easier. Additionally, there is talk of another hydrogen station install in Chula Vista.
- Ms. Lowe mentioned that the Energy Commission wants to encourage public-private partnerships to overcome such hurdles.
- The committee agreed that there are fuels that make sense for consumer use or light-duty use, and those that make sense for commercial or heavy-duty use. Mr. Wood noted that there was a matrix of fuel applicability with vehicle types that had been shared in the first Refuel meeting (November 19).

Mr. Wood continued the presentation and noted the numbers of PEVs needed in the region in order to reach the State's one million ZEV goal. Mr. Wood also highlighted the amount of funding that the Energy Commission has provided the region in grants for infrastructure and advanced transportation projects. Two recent awards (PON 14-604 and PON 14-605) provided millions in funding to Poway-based company, Transpower.

Mr. Wood's ended the discussion inquiring what resources can prepare the region for future investment in alternative fuel projects.

Refuel members had the following questions and comments:

- Jason Greenblatt (San Diego Gas & Electric [SDG&E]) said that car2go brought a lot of awareness of EVs in the region and the Port and the City's CAPs have helped Transpower with its success. Mr. Greenblatt recommended skipping the chicken and egg issue and make alternative fuels an all-at-once endeavor.
- Mr. Pointon reminded the group of the disconnect between policymakers and EV charging. State laws SB 880 and AB 2565 address HOA communities and rental communities for EV charging installation. Both legislations require a \$1 million liability policy for an HOA if a homeowner is to install charging equipment. Mr. Pointon notes, however, that few insurance companies are able to follow-through with such a request.

7. SAN DIEGO REGIONAL BARRIERS TO ALTERNATIVE FUEL DEPLOYMENT UPDATE (DISCUSSION)

Jessica Jinn (CSE) delivered a presentation highlighting a few of the most prominent barriers in the barriers table. She notes that the barriers cover three main themes: education, alternative fuel vehicles, and alternative fuel infrastructure. Ms. Jinn notes six main barriers and recommended resources and toolkits that can help resolve the barriers.

Chair Schmidt added that if any Refuel members have requests on how to address barriers or specific barriers to that they would like to focus on in the future, to inform Refuel staff.

Chair Schmidt asked for a motion to accept and approve the Regional Alternative Fuels Assessment with impending changes. Refuel members can comment until the following week. Mr. Chirazi motioned to approve the Assessment, Mr. Wyner seconded the motion. The motion passed without opposition.

8. UPCOMING MEETING DATES (INFORMATION)

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Ms. Lowe reminded the group that the Natural Gas subcommittee meeting is on April 22, 2015. Ms. Lowe noted that in May there will be one more Electricity subcommittee meeting, and the

remaining subcommittee meetings will involve refining and commenting upon different toolkits that will have been drafted. Ms. Lowe added that the next full Refuel meetings will occur in July and October.

9. MATTERS FROM MEMBERS (INFORMATION)

There was nothing shared at this time.

10. ADJOURNMENT

Chair Schmidt adjourned the meeting at 3:05 p.m. The next Refuel Coordinating Council meeting will take place on July 16, 2015.

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April 16, 2015, SAN DIEGO REGIONAL ALTERNATIVE FUEL COORDINATING COUNCIL
MEETING ATTENDANCE

REPRESENTATION	JURISDICTION / ORGANIZATION	NAME	MEMBER / ALTERNATE	ATTENDING
South County Subregion	Vacant			
North County Coastal Subregion	City of Carlsbad	Mike Grim	Member	NO
	City of Oceanside	Mo Lahsaie	Alternate	NO
North County Inland Subregion	City of Escondido	Jeff Wyner	Member	YES
East County Subregion	City of Santee	Kathy Valverde	Member	NO
	City of San Diego	Jacques Chirazi	Member	YES
	County of San Diego	Susan Freed	Member	YES
San Diego Association of Governments		Anna Lowe, Co-Chair	Member	YES
		Susan Freedman	Alternate	YES
	San Diego Regional Airport Authority	Paul Manasjan	Member	NO
	Caltrans, District 11	Chris Schmidt, Chair	Member	YES
Unified Port District of San Diego		Michelle White	Member	NO
		Kellie Carlson	Alternate	YES
San Diego Gas & Electric		Randy Schimka	Member	YES
		Greg Haddow	Alternate	NO
	Center for Sustainable Energy	Colin Santulli	Member	YES
	University of California, San Diego	Jim Ruby	Member	NO
	Miramamar College, ATTE Program	Greg Newhouse	Member	NO
	San Diego County Air Pollution Control District	Nick Cormier	Member	YES

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ADVISORY MEMBERS			
City of Coronado	Bill Cecil	Advisory	NO
City of Del Mar	Kristen Crane	Advisory	NO
City of El Cajon	Matt Lyer	Advisory	NO
City of Encinitas	Bryce Wilson	Advisory	YES
City of Imperial Beach	Chris Helmer	Advisory	NO
City of La Mesa	Howard Lee	Advisory	NO
City of Lemon Grove	Mike James	Advisory	NO
City of National City	Martin Reeder	Advisory	NO
City of Poway	Eric Heidemann	Advisory	NO
City of San Marcos	Lisa Fowler	Advisory	YES
City of Vista	Lyn Dedmon	Advisory	NO
Metropolitan Transit System	Sharon Cooney	Advisory	YES
North County Transit District	TBD	Advisory	
Department of Defense/Military	David Powell	Advisory	YES
San Diego Regional Clean Cities Coalition	Kevin Wood	Advisory	YES
Energy Policy Initiatives Center	Nilmini Silva-Send	Advisory	NO
University of San Diego	Michael Catanzaro	Advisory	NO
San Diego Regional Chamber of Commerce	Mike Evans	Advisory	YES
Cleantech San Diego	Jason Anderson	Advisory	NO

Other Attendees:

Jason Greenblatt – SDG&E
 Jack Hogan – Clean Energy
 Jessica Jinn – CSE
 Michelle Martinez – SANDAG
 Joel Pointon – JPL Charge
 Allison Wood – SANDAG
 Lyle Wright – City of El Cajon

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NATURAL GAS SUBCOMMITTEE MEETING

April 22, 2015

File number 3200900

1. HISTORY AND BACKGROUND OF NATURAL GAS

Due to the intimate group size, there was only a brief description of natural gas in the San Diego region. The first natural gas stations in the region were built by San Diego Gas & Electric (SDG&E) in the 1990s.

In the 1990s-2000s, California was moving towards natural gas for its clean air qualities compared to diesel and petroleum. It was an order of magnitude cleaner than diesel.

2. STATE OF NATURAL GAS

Fueling Stations Available

- The largest user of natural gas is the San Diego Metropolitan Transit System (MTS). They have been slowly integrating natural gas into their fleet over the past 15 years. In 2015, they will have a 100% natural gas fleet.
- Refuse fleets in San Diego County widely use natural gas.
 - Waste Management San Diego worked in partnership with Calpine to use the emission reductions from Waste Management's natural gas fleet to offset the carbon emissions to build a new power plant in San Diego County.
- Currently, though new technology diesel engines (NTDE) is now comparable to natural gas in terms of tailpipe emissions according to lab tests, natural gas still provides lower greenhouse gas emission without accessory equipment.
 - In regards to the federal congestion mitigation and air quality improvement program, there is no extra funding going to natural gas vehicles over NTDEs.

Renewable natural gas (RNG) is becoming more popular in the market.

- Biogas is captured from landfills, livestock operations, or wastewater treatment, then treated and refined to remove non-CH₄ (which makes up natural gas) particles, and added to the grid.
 - The RNG is sold through lines of natural gas transmission to stations.
- The full well-to-wheels cycle provides RNG with a lower carbon intensity than traditional LNG or CNG. There are fewer emissions when it is used, putting it on par with electric vehicles.
- Of the four Clean Energy natural gas stations in the San Diego region, only the Chula Vista station does not offer RNG. In order for a station to offer RNG:
 - Station needs to opt-in for RNG, which requires putting Clean Energy on a meter bill to track RNG being used and coming through to the station.
 - Using RNG can provide low carbon fuel standard (LCFS) credits.

How is Natural Gas being Used

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- Transit, refuse, and airport shuttle fleets are the main users of natural gas. There is growth for CNG tow trucks.
- Across the County:
 - 65% of all trash trucks purchased are natural gas
 - 90% of Waste Management's purchased trucks are natural gas
 - 50% of all transit bus purchases are natural gas
- This year, the San Diego airport will introduce a 16 bus fleet for the rental car center that will use natural gas.
- Clean Energy has a natural gas Ford F-650 that's available for renting to allow companies to understand what it's like to use a natural gas vehicle.
- Other private fleets have seen the cost savings of thousands of dollars per year when using natural gas instead of a diesel vehicle.

3. BARRIERS FACED FOR NATURAL GAS STATIONS

- Usually a station serves 150,000 gasoline gallon equivalents (gge) per year.
- Stations are installed once there is knowledge about the local traffic flow and the commitments from fleets that they will be going through to fuel at the station.
 - Generally, looking toward industrial areas where standard fueling station would already be included in zoning codes.
- Station size depends on the type of vehicles that are expected to fuel there.
 - Medium and light-duty vehicles can be supported on a $\frac{3}{4}$ acre – 1 acre lot.
 - Must consider how the vehicles will flow in and out of the station
- Usually want to build a station in an area where the pressure of CNG in the pipeline is high. The amount of pressure of the inlet gas affects the compression needed in order to deliver at the needed psi. The inlet gas pressure also affects the flow of the gas; the higher the inlet pressure, the higher flow that can be delivered.
 - To receive the information of inlet gas pressure, there are public maps available, or SDG&E has forms to fill out to find out the pressure available. Often it can take anywhere from a couple of days to weeks to get the information.
- Storage tank size depends on the number of hoses at the station and the how many vehicles will be fueling at the site. It does not really depend on the amount of fuel flow.
 - Storage tanks are useful when there is the occasional large vehicle that needs to fuel. The storage tank will help fuel the large vehicle quickly
 - If the main fueling visits are from light- to medium-duty vehicles, the storage is not necessary. The flow from the compressor to the nozzle will provide a satisfactory experience in itself.
 - Storage enhances the fueling experience and has fuel ready
- Standard onboard fuel storage is at 3600 psi. There are two different nozzles that are standard for natural gas vehicles.
 - The light- and medium-duty nozzle handles up to 1,000 cubic feet per minute (CFM), which is about 10 gge/minute. It also works for heavy-duty vehicles.

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- Heavy duty vehicles are equipped to take fuel from a larger nozzle. Typically, heavy duty vehicles have both types of nozzle connection capabilities. Most natural gas fueling stations offer the smaller nozzle.

The Permitting Process

- The siting work, electrical, and mechanical work involved in building a station all require permits.
- CNG fueling stations also need to follow specific fire codes; station developers work closely with local fire marshals.
- Permitting usually takes 9-10 months for a station to get installed. The construction time is only three months.
- When a new project begins, the station developer goes through a site investigation report process in which local authorities with jurisdiction are contacted and the permitting timeline is developed.
- There is no overarching roadblock when building a station; mainly, the only hurdle is to learn the new permitting requirements of new regions.

Integrated Skid Mount CNG Infrastructure—essentially, there is a set of standardized components that can be dropped on a site. It seems like a beneficial product because the engineering of a station would be quicker.

- Though that type of infrastructure may seem beneficial, a company such as Clean Energy has built so many stations that they are already using pre-engineered components.
- The designs of stations on paper are not very different, but what changes from site to site is how the installation happens and where the pieces of equipment are installed.
- Most engineering time is spent on site-specific details and that variability may add a week to engineering time.
- It is not a common practice to use the skid mount CNG infrastructure as a temporary solution.
 - Sometimes large fleets want to bring in a temporary station for their first vehicles while a station developer designs another one for permanent use.
 - For most customers, it is not cost-effective to gain a couple months of fueling in turn for spending money to ultimately redo the infrastructure from the temporary station.
 - The time it is used as a temporary solution is when a compressor is being replaced or repaired on an existing station.

4. RELEVANT POLICIES AND/OR AREAS FOR POLICY

Are there any policies that a city could adopt to help in station building process?

- The biggest barrier is the cost to build the station. Sometimes a city fleet might not necessarily meet all the numbers for volume to make a station economically feasible on its own.
- Policies that aim to reduce GHG emissions can be beneficial if they help justify green fleet purchases. However, there needs to be the fueling structure available to achieve those goals.
 - Caltrans wants to reduce fleet emissions by 20% by 2020; that is feasible in LA because there are many stations, but there are fewer stations in northern California, making it difficult to get that reduction.

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5. SUCCESS STORIES/BEST PRACTICES

- Greater LA area examples of CNG use:
 - LAX is selling a lot of RNG at the airport – Clean Energy has calculated their carbon savings and will look into sharing the information with Refuel.
 - City of Irvine replaced their pick-up trucks with natural gas versions and added nine additional ones to their fleet.
 - Knowing vehicle availability is important when deciding whether to adopt an alternative fuel
- San Diego region examples of CNG use:
 - City of Chula Vista and San Diego Air Pollution Control District use a lot of CNG.
- The benefit of natural gas is that it is more price-stable than diesel and petroleum. This allows fleets to properly plan for the future.

The next time the natural gas subcommittee meets the Refuel staff will put together materials documenting and packaging the case of natural gas for fleets and will review those resources.

Attendees / Call-in Participates

- Susan Freedman – San Diego Association of Governments (SANDAG)
- Dave Ulrich – Clean Energy
- Jack Hogan – Clean Energy
- Anna Lowe – SANDAG
- Nick Cormier – San Diego County Air Pollution Control District
- Kevin Wood – Center for Sustainable Energy (CSE)
- Jessica Jinn – CSE
- Michelle Martinez – SANDAG

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NATURAL GAS AND PROPANE SUBCOMMITTEE MEETING

June 11, 2015

File number 3200900

1. DISCUSSION ON TOOLKITS

- Michelle Heaton (Amerigas) noted that she liked the format of the toolkit components.
- Jack Hogan (Clean Energy) requested that a different natural gas vehicle be placed on the Natural Gas (NG) intro sheet because the taxi depicted is not available in California.
 - Estimated station costs for natural gas, which are listed, are a little lower than what he has experienced. He suggested raising the low-end and high-end estimate.
- Mike Evans (Shell) noted the benefit in discussing the emissions reductions that is occurring by moving a fleet over to propane or natural gas.
 - An emissions calculator available for all fuels would be useful.
 - It should be a standard component of the toolkits, placed upfront.
- Ms. Heaton shared a document that has nine steps in determining whether propane is the right choice for a fleet.
 - The group thought this was a good idea and suggested it being turned into a flow chart.
 - This can be morphed into general guidelines for whether or not a fleet should adopt a fuel type.
- Greg Newhouse (Miramar College) asked what other groups this should be marketed to.
 - Ready-mix, tow trucks, street sweepers, box trucks, and step vans are areas in which there is growth/potential for natural gas development.
 - Mr. Newhouse agrees that there should be a healthy tension in the documents between success stories (existing fleets with alternative fuels) and exploring areas for growth (fleets that could be using alternative fuels).
- Mr. Evans commented that it seems there is no compelling reason to choose one fuel over the other.
 - Kevin Wood (CSE) responded that it is feared that would result in playing one fuel against the other, which is not the goal of the toolkits.
 - Mr. Hogan shared that most fleets probably will not put in their own infrastructure; they will rely on public infrastructure. The most important priority for fleet managers is the availability of vehicles. Getting cleaner fuels may not necessarily be the fleet manager's initiative, but that of someone else.
- Mr. Wood asked if there are any other audiences to include for toolkit development. Additionally, when thinking about audiences beyond fleet, what information needs to be conveyed?
 - Mr. Newhouse brought up fleet vehicle owner-operators, such as airport taxis in which there are companies and drivers who own their own vehicles. He mentioned that the trucking industry is similar, and are unique because they are neither fleet nor consumers.
 - It was suggested that there could be an entirely different toolkit focused on these individuals.
- Mr. Hogan discussed the payback of a fleet making the transition to an alternative fuel vehicle.
 - Mr. Wood noted that not many fleets are taking advantage of used vehicles.
 - Mr. Hogan said that with the Prop 1B funding through the Air Pollution Control District, the requirement is to scrap the old vehicle; therefore, they cannot sell to the secondary market.
- Mr. Evans described some formatting suggestions and things he wants to see:
 - A list of all URLs to be present at the end of the document.

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- More links to case studies.
- Which fleets in the region have been converted, and which have not been converted.
- Mr. Evans suggested developing a list of regulations that may compel decision making when switching to an alternative fuel.
 - Mr. Hogan said that natural gas or propane vehicles do not need to use diesel particulate filters. He added that not using these filters will save fleets money.
- Mr. Newhouse suggested that an outline of the decision-making process would be beneficial for fleets/toolkit users.
 - Mr. Evans proposed creating a list of “considerations” to capture information that fleet managers are looking at as they evaluate the value of moving to alternative fuels.
 - The group concurred.
- Mr. Wood described future efforts to try to digitize these documents and host them online.
- There will be a fleet manager roundtable for Clean Cities sometime in July to discuss the toolkits.
- Complete drafts of all the toolkits will be completed by September. There will be time after that to continue making further changes as necessary.

Attendees / Call-in Participates

- Mike Evans – Shell
- Michelle Heaton – Amerigas
- Jack Hogan – Clean Energy
- Steve Moore – Expo Propane
- Greg Newhouse – Miramar College
- Anna Lowe – SANDAG
- Michelle Martinez – SANDAG
- Jessica Jinn – CSE
- Kevin Wood – CSE


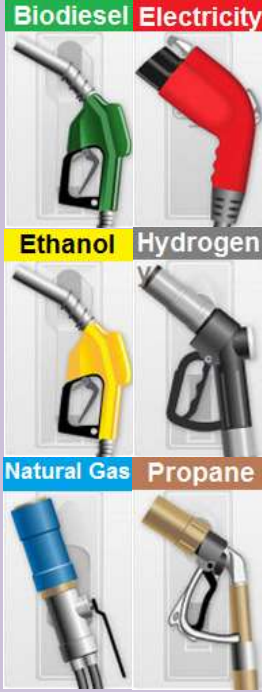
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BIOFUELS SUBCOMMITTEE MEETING



July 9, 2015

File number 3200900







PLACEHOLDER for meeting minutes.

Barrier: Education	Barrier Pertains To	Guidance Materials	Action Items
<p>1. Lack of Public Knowledge on Alternative Fuels</p> <p>- Lack of knowledge and misconceptions about alternative fuels and advanced vehicle technology.</p> <p>-Additional education on hydrogen is needed since it is a newer vehicle technology.</p>		<p>Promote Clean Cities vehicle guides, handbooks, and other relevant documents.</p> <p>Leverage consumer-focused resources available.</p>	<p>Recommendation: Develop materials/toolkits that allow general consumers to better understand AFVs, and provide a baseline understanding of AFVs useful to local governments. Includes:</p> <ul style="list-style-type: none"> • Reviewing existing consumer outreach materials • General "myths" and realities of each fuel (how the fuel is made, what vehicles use the fuel, range, etc.) • Relevant state policies that create the motivation for adopting AFVs • Guidance for local EV encouragement efforts- Work with South Bay Energy Action Collaborative to document best practices
<p>2. Training and Education for Municipal Staff</p> <p>-Lack of knowledge about alternative fuels and advanced vehicle technology.</p> <p>-Additional education on hydrogen is needed since it is a newer vehicle technology.</p> <p>-Need to further plan for AFVs in energy planning documents and implement strategies in municipal fleets.</p>		<p>Existing Conditions Report public agency survey results. The survey results reveal what municipalities have done to prepare for alternative fuels and what resources they lack in order to further adopt alternative fuel-friendly policies and strategies.</p> <p>Existing Conditions Report's section on codes and standards can serve as guidance for installations.</p> <p>Leverage National Renewable Energy Laboratory (NREL) developed codes and standards handbooks.</p> <p>Replacing government fleet vehicles with alternative fuel vehicles is a strategy noted in some Climate Action Plans (CAPs), or other energy planning documents.</p> <p>Ensuring open communication among fleet managers and planning staff to secure the success of CAP strategies.</p>	<p>Recommendation: Develop materials and toolkits that allow fleet managers and municipal staff to integrate AFVs and create/promote AF-friendly policies. Includes:</p> <ul style="list-style-type: none"> • Reviewing existing educational programs/materials • Reviewing past and current training programs & promote them • Planning documents to better assist jurisdictions in achieving GHG reduction strategies using alternative fuels • How to choose optimal locations for alternative fuel infrastructure • Relevant state policies that motivate greater AFV adoption • Sample policies that support the growth of AFVs


Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

<p>3. Training and Education for Emergency Personnel and Transportation Fleet Staff</p> <p>-Lack of safety and technical training for AFVs and AFI.</p> <p>-Need specific fleet data to better understand AFV performance.</p>		<p>Needs Assessment for Alternative Fuel Vehicle Training in California offer insight to training needs.</p> <p>Existing Conditions Report offers a section on training for emergency personnel and fleet staff.</p> <p>Existing Conditions Report fleet survey results. The survey results reveal what alternative fuels fleets around the San Diego region have already adopted. It informs about resources desired by fleet managers in order to integrate more alternative fuels into their fleet.</p>	<p>Recommendation: Develop materials and toolkits that will help train emergency personnel on how to handle AFVs and fleet staff on how to service AFVs. Includes:</p> <ul style="list-style-type: none"> • Reviewing past and current training programs • Developing training resources one pager, which includes contacts for training facilities within and near San Diego County and provide course/topic recommendations for each fuel type • Promoting trainings • Specific fleet data that allow fleets to understand the technical capacities/build of an AFV
<p>4. TOU Utility Rates/ Grid Integration</p> <p>-Need to discourage charging when electricity supplies are in high demand and cost more. Support of time of use (TOU) pricing.</p> <p>-High demand charges that impact EVSE host utility bills. Expensive metering options to access TOU rates.</p> <p>-Need further education on how PEVs integrate with the electricity grid, and how to reduce its grid impact.</p>		<p>Educate public on SDG&E EV time of use rates.</p> <p>Promote Plug-In Electric Vehicle Collaborative (PEVC) materials and guidance documents from the PEV Readiness Plan.</p> <p>Information on minimizing utility charges from natural gas station operation.</p> <p>Maintain regular updates and communication from SDG&E regarding its work with a proposed vehicle-to-grid pilot project.</p>	<p>Recommendation: Develop guidance and toolkits that help AFV users understand the way vehicles integrate with the electricity grid and general EV charging time of use information. Includes:</p> <ul style="list-style-type: none"> • Promoting information and guidance on utility rates/ grid integration • How vehicle charging time affects overall electricity/grid capacity (i.e. duck curve) • How used PEV batteries can be integrated into the electrical grid. • Optimizing natural gas infrastructure for limited electrical demand


Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

Barrier: Infrastructure	Barrier Pertains To	Guidance Materials	Action Items
<p>5. Station Development: Codes & Permitting -Need for increased guidance on EVSE, propane, natural gas, and hydrogen station installation processes.</p> <p>-Direction on how city staff and station developers can work together to ease station deployment process.</p>	<p>Biodiesel Electricity</p>  <p>Ethanol Hydrogen</p>  <p>Natural Gas Propane</p> 	<p>Promote Best Practice documents generated through the California Statewide Alternative Fuels and Fleets project.</p> <p>Propane, hydrogen, and biofuel Refuel subcommittees devoted a portion of time identifying barriers to station installation.</p> <p>Existing Conditions Report section on codes and standards serves as guidance for installations.</p>	<p>Recommendation: Address problems that frequently occur when stations are being installed (e.g., when propane station is built, screens are often required to be surrounding the propane tanks; not favored by propane providers). Includes:</p> <ul style="list-style-type: none"> • Fuel-specific permitting best practices to help jurisdictions facilitate station installations(Reference existing codes) • Successful installation case studies • Compiled station installation processes as discussed through Refuel subcommittees
<p>6. Station Development: Site Assessment -Station developers have come across right of way and easement issues.</p> <p>-Stations should be located along fleet routes.</p>	<p>Biodiesel Electricity</p>  <p>Ethanol Hydrogen</p>  <p>Natural Gas Propane</p> 	<p>Assist municipal staff through Clean Cities tools on zoning, station design, and assessment of station fueling needs.</p> <p>Conduct fleet route assessment to determine best locations for AFI.</p> <p>Promote electric, natural gas and hydrogen best practice documents generated through the California Statewide Alternative Fuels and Fleets project.</p>	<p>Recommendation: Provide solutions and guidance for municipal staff and other fleets on where to place fueling infrastructure. Includes:</p> <ul style="list-style-type: none"> • Enabling cities to site fueling stations based on their fleets’ routes and fuel usage (i.e., how to conduct fueling analysis) • Enabling private fleets to site fueling stations based on their fleets’ routes and fuel usage (i.e., how to conduct fleet analysis) • Enabling public agencies to determine best locations to install infrastructure for the public (i.e. providing relevant variables, methods, etc.)


Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

<p>7. Access to Public Alternative Fuel Stations</p> <p>-Lack of AFV adoption due to limited infrastructure near where fleets and the public need to refuel.</p> <p>-Lack of station access for heavy-duty vehicles.</p>		<p>Increase awareness of current and planned alternative fuel stations to fleet managers.</p> <p>Compile resource list of station locator maps.</p> <p>Guidance to station developers on building stations that are accessible to heavy-duty vehicles.</p> <p>Examples of outreach activities San Diego Regional Clean Cities Coalition has performed with local alternative fuel providers.</p> <p>Clean Cities Coalition guide on costs associated with CNG and propane fueling stations.</p> <p>San Diego Regional Clean Cities Coalition-developed maps of San Diego County infrastructure and proximity to residences.</p>	<p>Recommendation: Develop ways for fuel providers and local jurisdictions to increase awareness of public alternative fuel station locations. Includes:</p> <ul style="list-style-type: none"> • Reviewing existing resources and updating as necessary • Mapping tools to encourage more installations • Best practices for promoting alternative fuel stations to the public (e.g., an outreach guide)
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Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

<p>8. EVSE at Multi Unit Dwellings</p> <p>-Consumer and property owners have lack of knowledge regarding EVSE installation in these buildings.</p> <p>-Need to educate and work with HOAs to identify and find solutions to unique building challenges.</p>	<p>Electricity</p> 	<p>Promote PEVC materials and guidance documents from the PEV Readiness Plan.</p> <p>PEVC’s case studies on charging installations at MuDs.</p>	<p>Recommendation: Increase public understanding of complexities of charging at MuDs and gather resources to help facilitate charging installations. Includes:</p> <ul style="list-style-type: none"> • Gathering complementary information about MuD charger installations. Or, developing specific studies for particular charging scenarios (i.e., SB 880 and AB 2565 being ineffective if insurance companies will not add HOA as additionally insured – get examples of this.) • Promoting installation and information about EVSE through future CSE and SANDAG PEV Implementation work. This work may be coordinated in tandem with SDG&E’s vehicle-to-grid pilot project and adjusted as necessary
<p>9. Workplace Charging</p> <p>-Lack of understanding regarding benefits and approaches to workplace charging.</p> <p>-Need to further educate employers and property management companies about the benefits of workplace charging</p>	<p>Electricity</p> 	<p>Promote Calstart’s Best Practices for Workplace Charging and the California Plug-In Electric Vehicle Collaborative guidance documents.</p>	<p>Recommendation: Increase public understanding of complexities of charging at workplaces and gather resources to help facilitate installations. Includes:</p> <ul style="list-style-type: none"> • Promoting installation and information about EVSE through future CSE and SANDAG PEV Implementation work

Regional Alternative Fuel Vehicle and Infrastructure Barriers Table





<p>10. Infrastructure Costs</p> <p>-Lack of capital for station construction and operation costs.</p> <p>-Who pays for the upfront costs of the infrastructure? The grantee, ratepayer or end user.</p> <p>-Risk of investment.</p> <p>-Need justification/incentives for higher costs to build stations.</p> <p>-Need partners to justify investment.</p>	 <p>The image shows a 2x3 grid of fuel nozzles. The top row contains a green nozzle labeled 'Biodiesel' and a red nozzle labeled 'Electricity'. The middle row contains a yellow nozzle labeled 'Ethanol' and a grey nozzle labeled 'Hydrogen'. The bottom row contains a blue nozzle labeled 'Natural Gas' and a gold nozzle labeled 'Propane'.</p>	<p>Create forum for stakeholders to discuss and form partnerships.</p> <p>Promote Clean Cities tools, such as natural gas Vehicle and Infrastructure Cash-Flow Evaluation (VICE) Model which address payback period for natural gas vehicles and infrastructure.</p> <p>Past success from regions to apply for infrastructure funding from the California Energy Commission.</p>	<p>Recommendation: Provide public agencies and fleets with tools for evaluating and overcoming infrastructure costs. Includes:</p> <ul style="list-style-type: none"> • Evaluating and promoting existing tools • Providing a forum for coordination • Best practices of CEC infrastructure grant recipients so other jurisdictions may have similar success • Developing a guide that allows jurisdictions to better navigate and understand CEC infrastructure grants
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Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

Barrier: Vehicles	Barrier Pertains To	Guidance Materials	Action Items
<p>11. Selecting Appropriate AFVs -Advise municipal staff and businesses on choosing alternative fuels that will meet fleet needs.</p>	 <p>Biodiesel Electricity Ethanol Natural Gas Propane</p>	<p>Clean Cities tools such as the Vehicle Cost Calculator and Vehicle Search.</p>	<p>Recommendation: Help fleet staff and businesses choose most appropriate AFVs for their needs. Includes:</p> <ul style="list-style-type: none"> Promoting Clean Cities tools Developing guidance on determining most appropriate AFVs
<p>12. Procuring and Financing AFVs -Initial higher costs of AFVs barrier to adoption. -Need further outreach to fleets and public about incentives for procuring AFVs.</p>	 <p>Biodiesel Electricity Ethanol Natural Gas Propane</p>	<p>Connect municipal staff, businesses and local residents to dealers and vehicle manufactures. Provide guidance on leasing vs. purchasing an EV.</p> <p>Educate public on available incentives.</p> <p>A Public Fleet Pilot Project allows for cities with disadvantaged communities to apply for extra funding to buy new PEVs</p> <p>The CalEnviroScreen, a state-developed tool that identifies “disadvantaged communities” in the state, helps determine who can benefit from additional funding and pilot projects, such as the Public Fleet Pilot Project.¹</p>	<p>Recommendation: Assist fleets to understand the costs of AFVs and provide guidance on procurement and financing AFVs. Includes:</p> <ul style="list-style-type: none"> Identifying & promoting best resources on financing and procurement Reaching out to cities with disadvantaged communities to take advantage of extra funding to buy PEVs Costs associated with each type of AFV (provide a cost analysis) Developing models for financing vehicle acquisition

¹ The lack of San Diego regional communities labeled as “disadvantaged communities” limits the extra funding coming to the region. SANDAG believes this tool is not representative of the underserved communities existing in the region; that is, there are far more than are actually labeled in the tool.

Regional Alternative Fuel Vehicle and Infrastructure Barriers Table

<p>13. Converting Conventional Vehicles to an Alternative Fuel - Lack of understanding on the regulations, conversion kits available or companies that provide retrofit services.</p>	<p>Natural Gas Propane</p> 	<p>Information on CARB acceptable conversion kits and manufacturers.</p>	<p>Recommendation: Provide guidance on how to safely and lawfully convert conventional vehicles to use alternative fuels.</p> <ul style="list-style-type: none"> • Provide guidance on CARB approved conversion kits
<p>14. AFV Technology -AFV lifespan and range (especially for PEVs) in some cases is not competitive with conventional vehicles.</p> <p>-People not making the investment until they feel confident of the technology’s reliability.</p> <p>-People are wary of emerging AFV technology, unsure of its reliability.</p>	<p>Biodiesel Electricity</p>  <p>Ethanol Hydrogen</p>  <p>Natural Gas Propane</p> 	<p>Meeting summaries from Refuel subcommittee meetings serve as background for fuels and new technology.</p> <p>Alternative fuel vehicle industry websites also serve as background for new technology.</p>	<p>Recommendation: Provide insight into the up-and-coming technology and emerging fuels. Includes:</p> <ul style="list-style-type: none"> • Guidance on fuel and technology developments: dimethyl ether (DME), hydrogen, algae, renewable natural gas, drop-in fuels in general • Alternative fuel life cycle analysis, including second-life batteries • Discussion on vehicle technology “maturity” – how long have certain fuels been used, by who, and with what kind of results

Refuel:		Refuel	Subcommittee Meetings					Readiness Plan
Meeting Schedule		Q - Mtgs	Electricity	Natural Gas	Propane	Biofuel	Hydrogen	Public Workshop
2014	October	10/16/2014						
	November		11/19/2014					
	December							
2015	January	1/15/2015			1/8/2015		1/12/2015	
	February					2/26/15		
	March		3/12/15					
	April	4/16/2015		4/22/15			4/2/15*	
	May							
	June			6/11/2015				
	July	7/15/2015				7/9/2015		
	August		Aug-15				Aug-15	
	September							
	October	10/15/2015						
	November							
	December							
2016	January							Jan-16
	February							
	March							

*Refuel as a collaborator

Bolded meeting dates indicate toolkit outline presentation and discussion