State of California
California Energy Commission

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HECA project

Docket Number 08-AFC-8

AIR Data Request Number One

Association of Irritated Residents
Tom Frantz, President
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Why AIR is intervening in this application

The Association of Irritated Residents (AIR) submits this initial data request concerning the HECA application for certification on behalf of the residents of the San Joaquin Valley who must continually breathe the worst air in the nation. This air pollution costs valley residents billions of dollars annually in health effects, premature death, lost work days, lower quality of life, and lost crop production. Children who play outside in this air do permanent damage to their lungs. There are restraints put on economic activity because of this air pollution. Per capita income in the San Joaquin Valley is ten times below the state average. Unemployment is the highest in the state and education levels are the lowest. Teenage pregnancy and obesity rates are the highest. The list goes on and on. The San Joaquin Valley receives most of the sewage sludge from Ventura, LA, and Orange Counties. Garbage is trucked from LA to the San Joaquin Valley for deposit in landfills. A trainload of coal comes into the valley every week to produce steam for injection in the oil fields instead of using nearby and cleaner natural gas. The two biggest hazardous waste dumps in the western United States are located in the San Joaquin Valley, one very near to this site. Several million cows, which produce more waste than all the people in the entire state and contribute significantly to the regional air pollution problems, live in the SJV in unsustainable factory dairies and feedlots and their numbers have more than doubled over the past eight years. It is not a coincidence that this region of the state with the highest percentage of low income and people of color is also where exists the worst air pollution. Most of the stationary sources of this air pollution would be more highly regulated if they were located anywhere else. The fact they are not located elsewhere is a classic example of an environmental justice issue.

AIR has members currently in five San Joaquin Valley counties (Kern, Tulare, Kings, Fresno, and Stanislaus). AIR, as an unincorporated association, has been advocating for better air quality and opposing environmental racism for the past 9 years.

- **Data request no. 1**

Was the concept that there would be less local opposition to the project because of a clear majority of the local population consists of people of color who are low-income and under-educated, a reason for the current site selection in the San Joaquin Valley instead of elsewhere in the state? Was that concept ever discussed at any level by the applicant?

Project description

This project proposes to generate electricity, which is not needed locally, by incinerating (gasification is too misleading) a dirty fuel in an extremely polluted air basin. The project justifies this worsening of our air pollution by capturing and

perhaps storing, in an extreme earthquake zone perforated by hundreds of deep holes, enough of the CO2 emissions to make the project approximately equivalent in its climate change impacts to a relatively clean burning natural gas plant. Even then, because of the enhanced oil recovery use of the captured CO2, the claims of storing the CO2 are subject to speculation. In other words, the project will increase air pollution and promote directly more extraction and use of fossil fuel at a time when state priorities are to do the opposite. The comments and questions which follow will expound on this description.

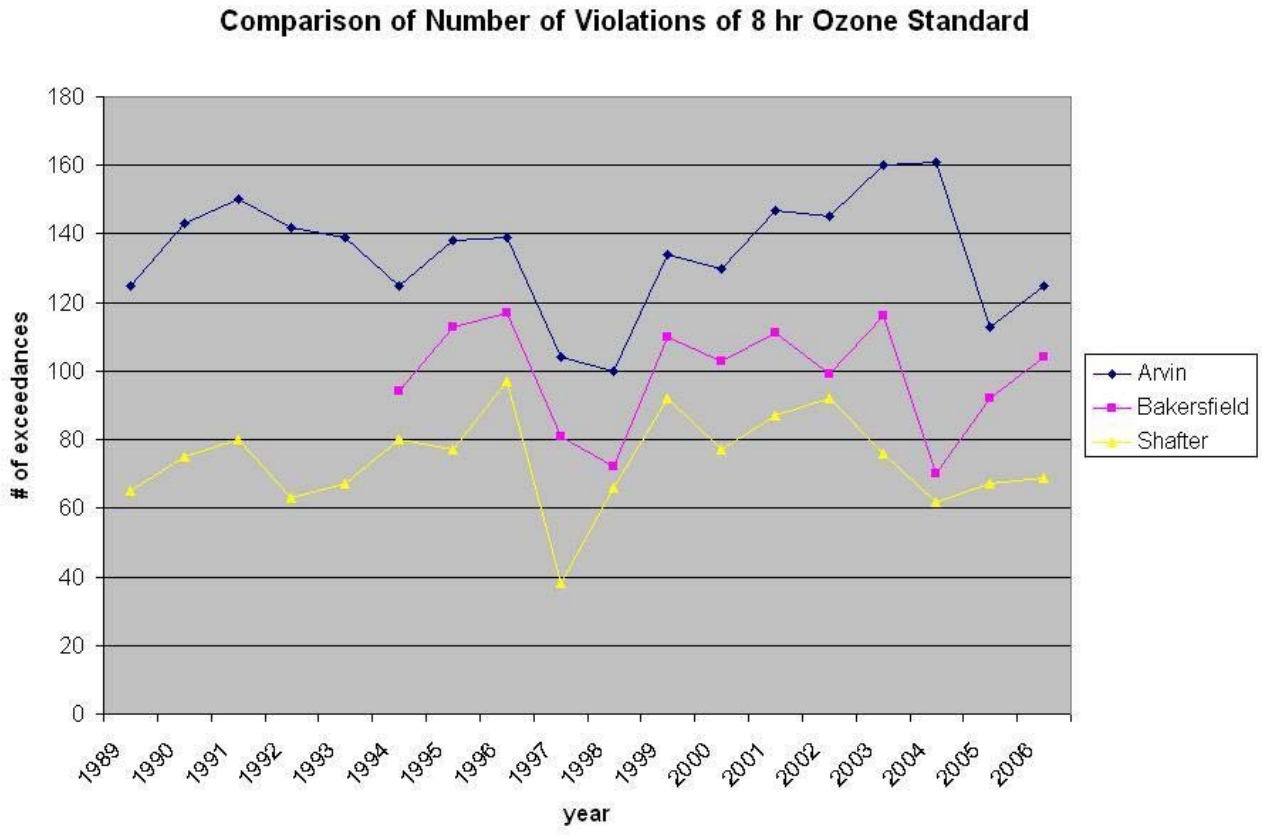
Ambient air assumptions

From the application:

> The monitoring station in the county that is closest to the Project Site is the Shafter-Walker Street Station, within 13 miles (21 kilometers) from the Project Site. However, this station only measures ozone (O_3), NO_x, and total VOCs. The Bakersfield Golden Highway station is the next closest and the most complete station that measures all pollutants except SO_2. This station is located approximately 21 miles (33 kilometers) to the east of the Project site. The only station in the SJVAB that monitors SO_2 is the CARB station at First Street in Fresno, located approximately 102 miles (164 kilometers) to the north. Sulfur dioxide data have only been recorded in Fresno County for 3 of the last 10 years (2003, 2007, 2008), a practice that is justified by the low levels that have been recorded for this pollutant when measurements have been made. Air quality measurements taken at these stations are presented in Tables 5.1-3 through 5.1-8. These tables show the pollutant levels recorded for the previous 10-year periods, as available. For the air quality impact analysis, the maximum background concentration from the past 3 years from all monitoring stations was used.
>
> The monitoring data indicate that the air is in compliance with all federal NAAQS and CAAQS for NO_2, CO, and SO_2 for all averaging periods. However, the monitoring data indicate that the NAAQS and/or the CAAQS are periodically exceeded for O_3, PM_{10}, and $PM_{2.5}$.
>
> URS 5.1-8 R:\09 HECA Final\5_1 AQ.doc

The Shafter ozone monitor does not provide a conservative representation of the ambient air quality. Shafter ozone measurements are relatively low compared to Bakersfield and locations southeast of Bakersfield. The HECA site is influenced heavily by the oil fields to the west and northwest of the project site. Prevailing winds push pollutants from some of these oil fields directly towards HECA. Many of the highest emitters of criteria pollutants are upwind of HECA including nearby Aera Energy and Chevron operations. Shafter is downwind of farmland for the most part. It would be more relevant and more conservative to use the Arvin monitor readings for ambient ozone measurements in the southern part of the San Joaquin Valley. Arvin is downwind from the HECA sight and is downwind from the oilfields north of Bakersfield. The ambient are around Arvin would be more similar to the ambient air around the HECA sight. Since Arvin has the highest ozone readings in the southern San Joaquin Valley it is also more conservative and precautionary to use it for ambient air readings instead of Shafter which actually has the lowest ozone readings in the area. The graph below shows the differences between Arvin, Bakersfield, and Shafter in the

number of violations of the 8 hr ozone standard annually from 1989 to 2006 before the standard was lowered from .80 ppm to .75 ppm last year.



The conservative approach would also indicate using the California and Stockdale monitor for PM 2.5 ambient levels since it generally shows higher readings than the Golden State monitoring station. They are approximately the same distance from HECA so the place with the highest readings should be used when an estimate for the heavily polluted area around the HECA site is being estimated.

- **Data request no. 2**

Is there any reason not to do the air analysis using the measurements of the nearby monitoring stations (in Kern County) showing the highest numbers for the relevant criteria air emissions?

From the application:

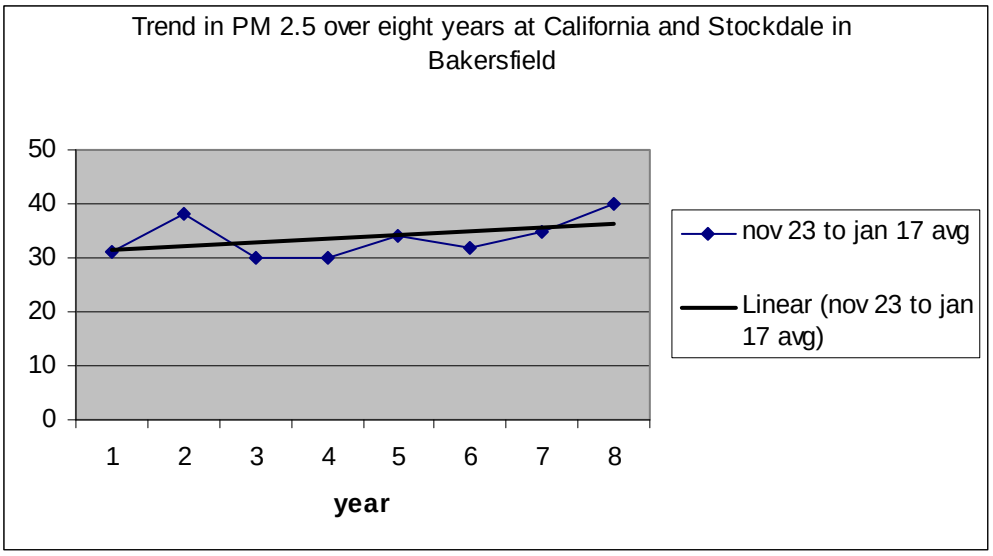
In the western U.S., there are sources of PM_{10} in both urban and rural areas. PM_{10} and $PM_{2.5}$ are emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processing; wood-burning stoves and fireplaces; wildfires; dust from

roads, construction, landfills, and agriculture; and fugitive windblown dust. Because particles originate from a variety of sources, their chemical and physical compositions vary widely.

Some clarification is needed on the local situation. The biggest source of local PM 2.5, which is the most predominate and harmful winter time air pollutant in the southern San Joaquin Valley, is the mixing of ammonia and NOx to form ammonium nitrate. Most of the ammonia comes from agricultural sources and levels of ammonia have increased greatly in Kings, Tulare, and Kern Counties with the tremendous growth of the dairy industry in these counties the past eight years. For example, both Kern and Tulare have seen an increase of over 150,000 milk cows the past eight years. With calves and support stock the increase in total livestock is far higher. This increase in ammonia levels coincides with a gradual increase in PM 2.5 levels at the California and Stockdale monitor over this same period of time. It is important to note that progress has not been made in this problem of PM 2.5 the last six years at this particular monitor in spite of NOx reductions from vehicle fleet turnover and in spite of the restrictions that have been put on both residential and agricultural burning over this period. The reason for this lack of progress needs to be examined carefully before large new sources of pollutants are introduced to the region from the HECA site. Especially, the rationale the air district uses to justify SOx emission reduction credit trading to mitigate PM 10/2.5 emissions must be re-examined. The air district contends that regulating or decreasing ammonia levels would not decrease PM 2.5 so they only regulate NOx and SOx and this is the justification for the interpollutant trading. They claim that since ammonia is in surplus over NOx that it would do no good to decrease ammonia levels. But, this is contradicted by Bakersfield PM 2.5 growth the past six years. The air district needs to explain this contradiction or anomaly in their PM 2.5 plan.

The graph bellows takes the average reading for the eight week period from Nov 23 to Jan 17 for eight years in a row. The regression line shows a clear and gradual increase in these averages. The last data point is for the eight week period from Nov 2008 to Jan 2009.

Clearly something is wrong with the local air district plan to come into compliance for the PM 2.5 federal standard. Just as clearly, the added PM 2.5 from this plant will interfere with the steady progress that needs to be made but is not being made towards compliance with this federal standard. It is not legal, therefore to trade SOx erc's from 20 years ago, or more, for PM 10/2.5 emissions.



- **Data request no. 3**

Will any SOx erc's be used to mitigate PM 10/2.5 emissions from the project and, if so, how can this interpollutant trading be justified?

Concerning Volatile Organic Compounds

Ambient VOC's will be very high in the vicinity of HECA because of nearby oil field operations. Besides what HECA produces, which is considerable, the oil fields to the west and northwest are emitting huge amounts of VOC's. Evaporation ponds for produced water from oil wells are estimated to cover 800 acres in the region from McKittrick to Lost Hills along Hwy 33. The amount of VOC's evaporating from this water is considerable but something the air district has failed to quantify. Without knowing the true extent of these emissions from the evaporation ponds there is no way to know if the additional VOC's from HECA will be cumulatively dangerous to surrounding operations.

- **Data request no. 4**

Without quantifying this significant nearby source of VOCs how can an accurate ambient air quality analysis be done?

Comparison to other power plants

The Avenal natural gas power plant proposal (08-AFC-1) is relatively clean and uses relatively little water when compared to other fossil fuel plants including HECA.

- **Data request no. 5**

In order to compare the HECA project to other fossil fuel plant alternatives such as the Avenal project we request an analysis to be done from the respective AFC's of the total projected emissions of both plants for NOx, SOx (or SO2), VOC, and PM 10/PM2.5. The figures should be put into a joint table and then calculations per unit of power to the grid should be done for each plant and each pollutant. Projected gross mobile emissions (in the San Joaquin Valley) should also be included in the comparison.

Mobile emissions

Table 5.1-25
Statewide Net Emission Difference

Operation Emissions tons/year	CO	CO_2	CH_4	N_2O	NO_x	PM_{10}	$PM_{2.5}$	SO_x	ROG
Current Scenario									
Route 1 (California Petcoke, Santa Maria Area)	7.51	2,744.87	0.08	0.03	41.10	1.44	1.33	2.05	2.38
Route 2 (California Petcoke, Carson Area)	1.18	671.41	0.01	1.69E-03	3.22	0.17	0.14	0.01	0.28
Route 3 (California Petcoke, Bakersfield Area)	1.78	1,019.15	0.02	2.57E-03	4.99	0.24	0.20	0.01	0.43
Route 4 (California Petcoke, Bakersfield Area)	3.01	1,729.77	0.03	4.40E-03	8.86	0.38	0.31	0.02	0.72
Misc. Trucks	–	–	–	–	–	–	–	–	–
Coal	–	–	–	–	–	–	–	–	–
Statewide Total	**13.48**	**6,165.21**	**0.15**	**0.04**	**58.17**	**2.23**	**1.99**	**2.08**	**3.81**
Project Site Scenario									
Route 1 (California Petcoke, Santa Maria Area)	7.23	8,471.11	0.02	0.02	14.77	0.85	0.76	0.04	1.70
Route 2 (California Petcoke, Carson Area)	6.43	7,712.72	0.05	0.02	13.33	0.72	0.51	0.06	1.27
Route 3 (California Petcoke, Bakersfield Area)	0.12	155.70	8.33E-04	3.99E-04	0.26	0.01	0.01	1.67E-03	0.03
Route 4 (California Petcoke, Bakersfield Area)	0.12	155.70	8.33E-04	3.99E-04	0.26	0.01	0.01	1.67E-03	0.03
Misc. Trucks	0.83	1,032.17	0.01	2.65E-03	1.75	0.09	0.06	0.01	0.18
Coal	4.40	2,058.38	0.05	0.02	22.36	0.80	0.73	0.29	1.33
Statewide Total	**19.13**	**19,585.78**	**0.12**	**0.06**	**52.74**	**2.49**	**2.07**	**0.41**	**4.54**
Difference	**5.65**	**13,420.58**	**(0.03)**	**0.03**	**(5.43)**	**0.25**	**0.08**	**(1.67)**	**0.73**

In the table above, HECA concludes that their mobile emissions are mostly offset by overall decreases in current statewide and local truck trip mileage. This is a convenient argument for the applicant to make because of their conclusions of net emission reductions but their assumptions are false. The total emissions for transportation of the pet coke and coal, from wherever its source, is the only valid approach and they must be added in total to whatever emissions the plant itself produces. What would happen to this same material, and where it would go, if HECA didn't receive it, is mere speculation. With AB 32 related future regulation putting higher carbon costs on energy it may be economically impossible for the pet coke to be taken to the ports and shipped overseas. It may have to be simply land filled as hazardous waste.

The fact they propose to use only the newest trucks to carry pet coke and coal to their project is good. But, they cannot assume this pet coke and coal would be carried by older trucks if they were not taking it themselves. Again, this is speculation and only serves to make the project look better than it actually is in projected emission levels from mobile sources. State law already demands huge improvements in diesel truck emissions so it is not possible to assume the truck fleet elsewhere in the state will indefinitely consist of older, more polluting trucks.

- **Data request no. 6**

Please provide the best estimate for the project of the total annual emissions from mobile sources for delivery of pet coke, coal, ammonia, other materials, waste disposal, and any other related transportation. These emissions should be calculated according to what quantities will be released in the San Joaquin Valley Air Pollution Control District. Construction phase emissions need not be included.

Green House Gas emissions

Again, a comparison with a modern natural gas plant such as Avenal is in order. It is already clear that criteria air pollutant emissions are far higher per unit of electricity produced at the HECA plant.

- **Data request no. 7**

Please compare total green house gas emission estimates for Avenal and HECA and be sure to include all mobile emissions from all transportation related to each project. On a separate line please show all GHG emissions that Occidental will emit as they receive, inject, recover, clean, separate, repressurize, and reinject all CO2 produced by HECA and sent to them for Enhanced Oil Recovery operations.

Carbon Capture and Enhanced Oil Recovery:

Because the captured CO2 is being used for Enhanced Oil Recovery this application should not ignore the fact that the oil recovered through this process would not be recoverable otherwise. It is entirely logical to add the GHG emissions from the consumption of this recovered oil to the total for the plant. Of course, this assumption makes the whole idea of considering this project as some way of reducing GHG emissions absurd.

- **Data request no. 8**

Please estimate the amount of oil to be recovered using the CO2 from HECA and then calculate how much additional CO2 the consumption of this oil will produce.

- **Data request no. 9**

Please estimate the total cost to this project of each ton of projected CO2 captured and compare that to the current cost of photovoltaic energy on an equivalent energy produced scale. If this data request is not understood, the point is to see if producing energy from photovoltaic is comparable to the cost of capturing CO2 including all subsidies, when the amount of energy produced is the key comparison factor.

Farmland loss mitigation

Since the site of the HECA project is on prime farmland, it is essential that an appropriate amount of prime farm land be put into a permanent easement where it can be preserved. The amount should not be less than four times the acreage lost to this project to discourage unnecessary farmland loss from this project and other projects in the future. This is required under CEQA and the CEC should not bypass this requirement.

- **Data request no. 10**

What is the total amount of farmland that will be preserved to mitigate the farmland loss from this project? Where is it located?

Water sources and mitigation

The applicants do not wish to use abundantly available water that is no good for other purposes such as the produced water from the oil fields. This is understandable because they would have to treat this water before using it. But, this is the only reasonable water source. The HECA process will produce CO2 to be used in enhanced oil recovery. This process will bring millions of gallons of produced water to the surface which must be dealt with. Currently, most of this produced water seems to be going into unlined evaporation ponds in the area. There are approximately 800 acres of such ponds receiving water from different oil fields in the immediate area from the southwest to the northwest from the project. The water contains lots of VOC's which are causing severe air pollution problems in the San Joaquin Valley. The HECA project will cause more of these emissions because of the EOR.

- **Data request no. 11**

What are the impediments to the project using produced water from the nearby oil fields instead of the relatively fresh groundwater?

The proposed water source is underground water that is marginally useful as irrigation water for crops. Even though they claim that by pumping this water, the farmers in the area will subsequently get cleaner water, there is no valid substantiation of this concept. As they pump water other water will flow into the voided underground aquifer. They claim only better water from the west will flow in their direction, thus improving water quality. But, saltier water from the east is equally likely to flow into the same space which would make the water quality worse.

- **Data request no. 12**

Where does the water migrate from currently to keep this underground aquifer brackish while farmers have been pumping in the area for decades already?

Biological Resources

The Tule Elk Reserve is within a mile of the project. It is inappropriate to put such a source of potential pollution on the doorstep of this existing reserve.

- **Data request no. 13**

What, if anything, is being done to mitigate the direct air pollution impacts of this project on the Tule Elk Reserve?

Nearby receptors and cumulative impacts

The nearby town of Buttonwillow needs careful consideration. There are times when the winds do blow slowly towards the northwest which can carry pollutants directly from this plant towards the residents of Buttonwillow. Buttonwillow is already impacted by many trucks per day which carry toxic waste to the nearby toxic waste dump and massive oil field related traffic. They are also impacted by nearby sources of air pollution in the oil fields. These sources constitute the greatest stationary sources of air pollution in the entire San Joaquin Valley. Interstate 5 is also on the doorstep of Buttonwillow. Huge factory dairies are also nearby sources of VOC's and ammonia. There is one proposed dairy (Goose Lake) right across the street from this plant and the criteria air pollutant emissions (including ammonia) and hazardous air pollutants (methanol) from this dairy must be considered. Boswell has a huge tomato processing plant on the outskirts of town. Many pesticides are used on the crops surrounding the town. The town of Tupman also has similar problems. Not far to the southeast is the Buena Vista lake and recreation area. Not far to the south is the Buena Vista Golf Course. Nearby these recreation areas is a huge sewage sludge dump

called Green Acres which receives the majority of the sewage sludge from Los Angeles.

There has to be a better way to analyze the cumulative impacts on an area such as the one described above. Does the CEC not have a way to look at the big picture and see what is happening in regard to these cumulative impacts? The carrying capacity of an area in regards to sources of pollution must be considered when approving huge new sources of contamination. The people living in the area are predominately low income and people of color. It is an environmental justice issue in the extreme when so many polluting industries are located so close to communities like Buttonwillow and Tupman.

- **Data request no. 14**

Given all the environmental problems already in the immediate neighborhood of this project, and given that this project will add significantly to these problems, what can morally justify locating this project in this area at this time?

Sincerely,

Tom Frantz
President, Association of Irritated Residents

STATE OF CALIFORNIA
State Energy Resources
Conservation and Development Commission

In the Matter of:	)	08-AFC-8
	)	
Hydrogen Energy California	)	**DECLARATION OF SERVICE**
_____	)	

I, _Tom Frantz, on behalf of the Association of Irritated Residents, declare that on __October 7, 2009 _, I served and filed copies of the attached ***Data Request Number One***, accompanied by a copy of the most recent *Proof of Service* list with the Docket Unit. The document has been sent to the Commission AND the applicant, as well as the other parties in this proceeding (as shown on the *Proof of Service* list), in the following manner:

FOR SERVICE TO THE APPLICANT AND ALL OTHER PARTIES:

_✕_ sent electronically to all email addresses on the Proof of Service list;

AND

FOR FILING WITH THE ENERGY COMMISSION:

__✕__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Tom Frantz	October 7, 2009
Name	Date

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APPLICATION FOR CERTIFICATION
FOR THE *HYDROGEN ENERGY CALIFORNIA PROJECT*

Docket No. 08-AFC-8

PROOF OF SERVICE LIST
(Rev. 9/3/09)

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