Attachment B

OBSERVATIONS ON EVAULATION CRITERIA OF JANUARY 8, 2019 PRELIMINARY DRAFT VW TRUST FUND SOLITATION PLAN ROUND 1

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IDEM Proposed Evaluation Criteria Draft 1-28-19

"Each eligible application will be evaluated according to the criteria set forth below. Applications that directly and explicitly address these criteria will have a greater likelihood of being selected for an award. Each application will be rated under a points system, with a total of 100 points possible. An additional 5 points are possible for Indiana owned and operated enterprises, as well as an additional 5 points active participants in minority/women/veterans business enterprise participation plan. Projects will be evaluated and scored based on the following criteria:"

Criteria	Points
Cost effectiveness of project ($ per ton of NOx reduced).	25
Project's total NOx emission reduction potential (based on type of project and/or the use of vehicle).	20
NAAQS sensitive areas as a percentage of current standards.	15
Air quality benefits to areas with sensitive populations or that bear a disproportionate share of the air pollution burden.	10
Transformational potential (potential to prove or maximize effectiveness of newer technology).	10
Leveraging of resources (financial or resource match).	10
Longevity of emission reduction benefits.	10
BONUS: Bonus points will be provided to Indiana owned and operated business enterprises (include Indiana Economic Impact documentation).	5
BONUS: Active participant in the State of Indiana Minority/Women/Veterans Business Enterprise Participation Plan (include MBE/WBE/VBE documentation).	5

I. OVERALL OBSERVATIONS ON IDEM 1-28-19 DRAFT

A. The IDEM Proposed Evaluation Criteria are Biased Against Alternative Fuels and Electric

Although it is difficult to assess precisely the implications of the IDEM proposal for the reasons listed below, the weighting alone favors 1) projects with lowest equipment purchase price instead of lowest total cost over lifetime of use, including purchase price and 2) projects with larger number of diesel replaced immediately compared to projects with fewer in number immediately. If we do not care about energy platforms, to be fair we must not have the algorithm itself be biased against some technologies. On the other hand, to be transformational like some other states are doing, perhaps we do want to be biased to transforming fleets to a different more economical over the long-term and sustainably cleaner energy platform.

B. The Inherent Limitation to the Approach of Summation of Numeric Criteria

This type of algorithm of scaling and weighting numbers for each of a series of different objectives and the summing them is commonly used because it is a simple a way to get a single number. It rewards projects that score middling in all categories over the projects that are really good a achieving an important objective but not good at other criteria. Adding up many different criteria means the advantages of a project regarding each goal are obscured.

C. Align Evaluation Criteria with "Anticipated Outcomes" and with BMP Vision and Goals

The evaluation criteria and weighing must be aligned with the "Desired Goals and Anticipated Benefits" of p. 4 and with the BMP Vision and Goals. As written, these three statements are not aligned in this preliminary draft. This must be corrected.

D. Add Narrative Judgment to Complement the Single Value of the Numeric Criteria

The numeric evaluation criteria should be accompanied by a second non-numeric assessment. It is impossible to evaluate all important judgment factors numerically and combining into a single value the results of different scales for different factors of widely varying numeric criteria itself gives as false sense of a meaningful result. The numeric evaluation of this type favors projects that are mediocre in all categories and disfavors important projects weak in some categories but overall are outstanding for the purpose intended to help the State air quality and economy.

E. Need Scale for Each Criterion

It is impossible to evaluate and agree on the appropriateness and usefulness of any of the criterion without knowing what the scale is. How much difference in discriminating among projects in a positive way will the particular scale achieve? What will be the implications for of the scale for other projects?

II. ANALYSIS OF IDEM 1-28-19 PRELIMINARY DRAFT EVALUATION CRITERIA

A. Cost effective (dollars per ton of NOx)

(this evidently will combine 1) the age, annual usage and remaining life of old diesel being replaced and 2) the new-vehicle purchase price and new-vehicle emission control effectiveness to be achieved for the several year period corresponding to the length of the remaining life of old vehicle)

The "cost-effective" meaning is project capital cost for short-term air pollution benefit. (Ohio uses this approach but reduces the cost to that which the grant provides to make it a measure of the cost-effectiveness for short-term benefit for the VW Fund itself.)

This criterion combines too many different factors in a single value to be of much use to discriminate among projects in an important way.

I can see the advantage, if all things are equal, for favoring elimination of a high-use old vehicle with long remaining life compared to elimination of low use vehicle of shorter remaining life. But that criterion must be restricted to that single factor, not mixed in with other purposes.

I can see the advantage of a criterion discriminating among the choses of EPA-certified replacement vehicles if that is for life-time capital and operating costs at not just the purchase cost and just for the length of what would have been the remaining life of the old vehicle. That criterion also should be only for that to be of value. This compares technologies and addresses the economic cost-effectiveness to the owner.

I can see the advantage of a criterion that has a scale capturing the relative pollution control reductions for each pollutant of concern, perhaps like an air pollution control index. This could capture harm avoided which would be different for each type of energy platform for each pollutant in the first of the anticipated benefits on p. 4. Ideally it would capture the possibility of degradation of pollutant control devices over the lifetime of use,

How does remaining life get determined and verified? Will this be a default government model median end-of-life age less actual age given usage and climate or does applicant get to decide? Obviously, there is strong financial incentive for the applicant to report that the hypothetical remaining life be a very long time regardless of when the applicant would have been planning to replace the old vehicle. Having a quarter of the prioritization of grant applications dependent on this judgement call by the applicant seems great conflict of interest were this criterion weighed this much.

If this criterion remains the combination of old and new technologies addressing just short-term benefits, I would weight it not more than 5 points

B. Total NOx emission reduction potential

All projects will by definition reduce NOx significantly by an amount proportional to remaining life of each old diesel times the VMT.

This criterion essentially combines 1) the age, annual usage and remaining life of the replaced vehicle for the short-term ai quality benefit and 2) the absolute size and number of replaced vehicles.

A single project of twenty vehicles will score five times better than each project of a smaller number of vehicles. Big vehicles will be favored over small voices for VW funding by this criterion

If it is considered desirable to keep this criterion to distinguish among projects, then must choose and publicize a proper scale (e.g. a linear or a log step function).

Since both BMP and anticipated outcomes mention more pollutants than NOx, it is necessary that those other pollutants be included in some way.

Because for discriminating among applications this in essence is just measuring size of a single project I recommend this weighting be no more than 10 points.

C. NAAQS Sensitive Areas as percentage of standards

This criterion, as written, is not very useful to discriminate among projects.
If by "NAAQS" is meant the design value for ozone to relate to the IDEM attention to NOx, then the percentage scale for ranking would be 15 for 70 ppb and above (sensitive areas?) and either 13 or 14 for areas below 70 down to background concentration in Indiana.

That means this criterion affects the ranking of a particular area by only 1 or 2 %.

I suggest reducing the weighting of this criterion to 10 points.

I prefer attention to each pollutant ala air pollution control index to distinguish more stressful places to live**.** Attention should be given to the scale.

It is good idea (and consistent with VW Trust Fund recommendations) to favor to some degree projects in areas suffering air pollution burden but there must be crafted the appropriate scale and selection of appropriate pollutants.

D. Air quality benefits to sensitive population or population bearing disproportionate share

This is an important criterion if it refers to the people breathing the diesel exhaust gases instead of the overall ambient air quality on infrequent bad days.

Applicants should explain the poverty levels and proximity to residential areas and especially to children, hospitals and housing for elderly.

If appropriately defined and scaled, I recommend increase this to 25 points as redefined.

E. Transformational benefits (prove or maximize benefits of newer technology

This is important criterion if it is redefined to measure

a) The change in technology energy platform to a less costly and cleaner choice that is sustainable over its lifetime AND
b) the degree to which a successful project would affect a future technological change in the fleet compared to the existing fleet composition.

Part of evaluation would be owner commitment after receiving the rebates for some vehicles to not only to using fleets in Indiana and maintaining them in good order but to change the other vehicles in the fleet to the new technology as the replacement cycle is reached, if the experience with the new technology is satisfactory

Recommend 20 points as redefined

F. Leveraging of other resources

As a criterion this needs more precision in order to be fair to applicants of how it will be assessed

Two types

1) Applicant requests less than full grant that would be authorized
   This is straight-forward.
2) Applicant pledges to do other activity or investment
   a) Necessary to support a changed technology required for the operation of the replacement vehicle
      Applicant should verify this as minimum condition of rebate. It should not be 10% of evaluation criteria compared to others.
   b) Destroys and replaces other vehicles with remaining life without rebate

I could see this as a consideration but not a part of the numeric set. This obviously favors the wealthy over the poor. A project that provides much more public health and economic viability to a poor government applicant, for instance, would be prioritized lower than a project of a wealthy applicant with greater leverage. But it does have the benefit of favoring applicants committed to putting more than minimum assets into the project.

G. Longevity of emission reduction benefits

This is an important criterion.

Instead of focus on the remaining life of the replaced vehicle that will no longer pollute, this focuses on the lifetime of the replacement vehicle as continuing to emit less pollutants.

Different replacement technologies have different longevity with respect to emission control effectiveness for NOx, PM 2.5, HC, CO and CO2. I suggest a pre-formed scale recommended by

an independent lab such as Argonne Labs to rank technologies with anticipate lifetimes for given VMT or hrs operation for emission control effectiveness.

Recommend this be 20 points if focused as recommended.

BONUS - Indiana-Owned

"Indiana-owned" must mean the same thing in the eligibility sections of the plan and in the reason for bonus point. Now the definitions are different. Eligibility for on-road says "Indiana-owned" means Indiana license plates.

BONUS – Registered MBE/WBE/VBE

A bonus for "active participant" in the State of Indiana Minority/Women/Veterans Business Enterprise Participation Plan makes no policy sense to me for this grant. These are a subset of minority/women/veterans firms that have paid to register to compete for State contracts (and many business contracts with vendors favor such registrants as well to simplify their out-sourcing decisions). When distributing state funds for contracts for services, it makes sound policy sense to favor each of these categories for employment over others. But our fund is for a grant for a rebate on a piece of equipment. No one gets employment as the result of our reimbursement. I would favor distribution on basis of ability of that owner and that equipment to achieve the VW Fund air quality and economic vitality objective.

III. ALTERNATIVE EVALUATION CRITERIA

I believe that the Committee's intent for the Indiana VW Fund can be divided into two broad, different initiatives:

One is to transform the heavy and medium duty fleets operated in Indiana from diesel to the most appropriate alternative energy platform. At this time, as evidenced by many corporate owners shifting to such alternative fuels and electric for economic reasons, many fleet owners not making that shift do not understand that it is in their long-term economic interest to do it or they faces barriers of employee resistance to change or are unable to afford short-term costs for the long term return on investment.

The second is to upgrade diesel vehicle operations to models with exhaust treatment for those situations uniquely requiring diesel engines. Whenever a new diesel exhaust system is part of what the Fund subsidizes, there must be special agreement that the exhaust system will be maintained, monitored and replaced when the emission control have degraded to below that required for certification.

To achieve both of these initiatives within the current terms of the Indiana BMP set-aside breakout,

I suggest:

a) **the $12.79 M onroad funds could be restricted to the transformational initiatives 1) only to replacement vehicles (not repowering) and 2) only to alternative fuel and electric. (The reason for no repowering for onroad vehicles is for safety and integrity of chassis and drive train in Indiana climate. Putting new engines in 10-year-old and older chasses in Indiana climate does not seem wise stewardship of funds compared to rebate for new vehicles with longer much life expectancy. The fund could ban such repowering or reduce then Fund subsidy by half of what the Fund recommends.)**
b) **the $8.20 M nonroad funds be open to diesel and alternative fuels and electric, whichever is estimated to be most cost-effective over the long-term including cost of replacement of diesel exhaust treatment system. For especially large vehicles where the chassis and drive-train last decades and the diesel exhaust is especially impactful on neighbors, repowering should be allowed.**
c) **the $4 million for DERA can be distributed according to Dieselwise priorities, most of which will likely support purchase of diesel power plants.**

Round One could proceed as proposed in the 1-28-19 IDEM draft of roughly one-third of these amounts for onroad and nonroad.

A. Possible Narrative Evaluative Criteria

The IDEM 1-28-19 draft proposes a single numeric algorithm to evaluate the relative value of projects. Numeric criteria for multiple independent objectives cannot be combined into a single meaningful and useful single number. Even were it possible to create a perfect weighting and scaling for each objective and then possible to score without bias, the sum of such unrelated items is a mishmash. Instead of being a good measure of all objectives is reflective of none. In fact, it is the mediocre project that scores in the middle of all categories that scores higher in aggregate than the projects that are truly outstanding for one or two important objectives.

Therefore, a narrative criteria allowing for wise judgement must be used to supplement the evaluation by numeric criteria.

The Narrative Criteria should be focused on what set of projects most closely reflects the vision and goals of the BMP for the long-term transformation of the State to a better place economically and with the public health. It should include judgments not in the BMP set-asides such as a preference for some sort of equitable geographic distribution (e.g. different parts of state, rural/urban)).

Some judgments about the impact of the project could include:

- Applicants demonstrated an economic analysis showing that for their circumstance, transforming the fleet from diesel to a new energy platform would likely be the most economical for them considering capital and operating and maintenance and exhaust treatment replacement costs over the life of the vehicle.

- Applicants demonstrated an opportunity, capability and commitment to magnify their project impact by educating others in their professional circles of the advantages to overcome the familiar fleet practices to invest in a transformation that would pay off in the ten- and twenty-year timeframe and thereafter.

- Applicants with old diesel trucks and buses in circumstances uniquely exposing vulnerable people to high diesel exhaust such as ambulances at hospitals.

- Applicants with imaginative impactful projects that could transform segments of a community or regains such as beginning to phase all trash haulers to CNG or municipal transport to electric or commitment of an industrial sector to phase all indoor fork lift to hydrogen or transforming all stop-and-go delivery trucks in community to alternative fuel.

- Applicants with in-kind support to enhance the public health or transformational impact of the replacement equipment purchased

- Applicants making uniquely significant impact on reduction of emissions of one of the VW Trust Fund pollutants of concern (NOx, PM 2.5, HC, CO, CO2, toxics)

- Special reasons applicants consider their project to achieve vision and goals of BMP

B. Possible Alternative Numeric Evaluative Criteria

This is trying to be a 50:50 balance of benefits of premature retirement of 1992-20009 diesel vehicles and benefits of transforming to new cleaner and more economical energy platform. I suggest this as something to discuss and modify. `

1. **(10) Total Tons NOx Reduced by Average Vehicle Eliminated by Project by Premature Retirement of Old Diesel (Product of VMT and the Estimated Remaining Life of the Replaced Vehicle According to Annual VMT of Use of Last Three Years)** Remaining life should be the USEPA default median life as in DEQ given rate of use of last three years. That calculation includes estimate of average wear and tear plus climate impact.

   Set a linear scale between 1 and 10 with for onroad vehicles something like 10 = greater than 10y remaining at 100K mi/y and 2 at greater than 3 years remaining at 10K miles per year.

   This scale is per vehicle. For multiple vehicles, the average of the vehicles. Is used. This rewards projects that optimize the destruction of old diesel with the longest lives remaining.

2. **(10) Total Tons of NOx Reduced by All Old Diesel Vehicles Eliminated in the Project (Sum for all Vehicles of the Product of VMT and the Estimated Remaining Life of the Replaced Vehicle According to Annual VMT of Use of Last Three Years)**

   Could use similar scale as number 1 but using the sum of all vehicles destroyed times the VMT of each instead of average using the average of vehicle remaining life times VMT.

   This values projects eliminating many diesels prematurely compared to small projects.

   Can an applicant bundle old diesel from multiple locations or from multiple owners to participate?

3. **(10) How Far from Regional Compliance with NAAQS for Ozone and PM 2.5**

   Combination of design value for last three years for Ozone and PM 2.5. Set Midwest background as the zero value. Transpose concentrations between background and the standard to 0-5 for ut each pollutant and sum the two pollutants. That is not elegant and is not relative of the relative health risk but it is simple to achieve.

   I personally do not like this measure for our public health purposes because for any three-year period the ozone value excludes consideration of the nine highest 8-hour readings not to mention the high 1-hour readings. It is the short-term impact that affects asthmatics. There is similar problem with PM -2.5 design value. Also it is based on the single worst monitor so areas in and out of a region identified is bad air or good air may in fact have same quality air. Often for ozone and PM 2.5, the pollutant and pollutant precursor are emitted at a point distant upwind from the monitor.

4. **(10) Sensitive Population To what extent does the vehicle operate amidst populations with respiratory sensitivity?**

   Draw from ISDH data on concentration of asthmatics by, for instance, hospital visits to distinguish among counties with individuals more susceptible to health damage from diesel exhaust

5. **(10) Poverty To what extent does the Vehicle operate in areas of poverty?**

    10 90% or more of expected VMT in poverty Census tract
    8 80% or more of expected VMT in poverty census tract
    6 70% or more of expected VMT in poverty census tract
    4 60% or more of expected VMT in poverty census tract
    2 50% or more of expected VMT in poverty census tract

6. **(20) Transformational How big of a difference will the replacement vehicles make?**

    + 10 points if change equipment from diesel to alternative fuel or electric
    + Up to 5 points relative to size of eventual fleet to be transformed over next ten years

    Commitment due to long-term cost-effectiveness and sustainable emission controls to pay to shift entire fleet to alternative

    5 – 100 vehicles
    4- 50 or more
    3 – 25 or more
    2 – 10 or more

    1 – 5 or more

    + Up to 5 points relative to size of transformation of fleets of others in next ten years in your area or sector

    (e.g. shift to zone of community with all refuse trucks at CNG; objective to work through professional organizations to demonstrate to all school corporations in area of superiority of propane or CNG or electric as fuel for school bus)

7. **(15) Leverage How much less than the minimum VW Fund rebate does the applicant agree to accept?**

    15 when accept 75% less than BMP subsidy guideline
    12 when accept 50% less than BMP subsidy guideline
    9 when accept 25% less than BMP subsidy guideline
    6 when accept 10% less than BMP subsidy guideline
    0 when accept what subsidy in the BMP guideline

8. **(15) Longevity How long will the lower emission per replacement vehicle operation last?**

    + (10) Confidence that the effectiveness of emission control will last

    a) **For nondiesel replacement**: Commitment the entire fleet will eventually be transformed to alternative fuel or electric and maintained in good condition.

    (once this commitment is made to transform fleet, future purchase decisions will always have low emissions so it does not matter to air quality how long the replacement vehicle itself is operated)

10- Written commitment to pay to transform fleet under regular rotation

5 – Written commitment to use the vehicle for its lifetime and keep properly maintained

b) **For diesel replacement:** Confidence the replacement vehicle of diesel with exhaust treatment device will be maintained and treatment exhaust device replaced when it is degraded to point of harmful emissions

10- written commitment to report annually 1) that the exhaust device has not been disconnected, 2) that the exhaust device has been properly maintained and 3) that the exhaust device has been replaced when it has degradation o point of harmful exhaust

5 – written commitment use the vehicle for its lifetime while not disconnecting the exhaust treatment device, while maintaining it properly and while purchasing the replacement treatment device when device has degraded to point of emitting harmful gases.

0 – no written commitment

+ (**5) Confidence the replacement vehicle will be used in the location in Indiana for its anticipated useful life**

5 – applicant is government or institution that has operated fifteen years in Indiana

4 – established applicant provides prove of commitment and ability to fulfil commitment

3– applicant intends to use in area for life of vehicle but no proof of commitment

2 – applicant has control of at least three years but little predictability of future use of fleet

1- applicant has control of one year but little predictability of future use of fleet

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IV. CONDITIONS OF GRANT

- Suggest a standing MOU between grantee and IDEM that grantee needs permission from IDEM to adjust any conditions such as selling the vehicle or operating the vehicle other than where applicant had promised.
- Annual certification that vehicle remains operated in Indiana and is being maintained. Permission from IDEM for sale for use out-of-state or change to operate mostly out-of-state commitments used to evaluate the grant such as the vehicle will operate its life in Indiana under current owner
- Just like offsets in nonattainment areas and SEPs, conditions of the grant should be permanent, quantifiable and enforceable.