

New Technology Implementation Grants program

2nd Stakeholder Advisory Group Meeting

March 29, 2010

2:00 – 3:30

TCEQ, Austin Campus,

Building F, Room 2210

Minutes

I. Introduction.....Matt Burnett, NTIG Program Coordinator

II. Guidelines.....

QUESTION: Should testing protocols be defined?

NTIG: For categories of Advanced Clean Energy Projects (ACEP) and New Technology Projects (NT), the NTIG program should look to the applicant's permit, or the TCEQ Office of Permitting, for guidance on appropriate testing protocols? **VOTE** (ask all stakeholders to state their approval or objection).

Stakeholders (ALL): Yes

NTIG: Do any of the stakeholders, or anyone else present, know of any testing protocols for electric storage projects?

Public Utility Commission of Texas (PUCT): Testing protocols for electric storage projects vary depending on the specific technology.

NTIG: The NTIG program should handle testing protocols in the Scope of Work during the contract development stage. PUCT can help out during that stage. Testing protocols are not explained or laid out in the NTIG Guidelines or NTIG Applications.

Good Company: A representative from the Electric Reliability Council of Texas (ERCOT) is present today to offer expertise. PUCT oversees/regulates ERCOT.

Audience (ERCOT): ERCOT does not have any testing protocols for electric storage projects now, but NTIG should make it a condition of award to comply with any future protocols developed.

NTIG: Electric storage testing protocols will be handled in the Scope of Work on a case-by-case basis?

ALL: Yes

NTIG: The sale of replaced equipment will be considered a benefit and must be accounted for when determining the cost of implementing the project.

NTIG: Described baghouse example and how an existing baghouse could be decommissioned and sold to another company. This pertains only to the categories of ACEP and NT. These major pieces of equipment should be accounted for.

QUESTION: How long must an applicant own and/or operate the NTIG funded equipment before it can be sold or disposed of?

NTIG: Should grantees be required to own/operate grant funded equipment for 5 years before grantees can sell or dispose of grant-purchased equipment (**VOTE**)?

ALL: Yes.

NTIG: Should grantees be required to operate grant-purchased equipment for 5 years after implementation is completed (**VOTE**)?

ALL: Yes.

QUESTION: Once the active part of the contract is complete, how frequent should the applicant report on the operation of the NTIG funded equipment?

NTIG: How often should grantees submit operational status reports? Quarterly? Biannually? **VOTE**.

Good Company: Depends on the administrative burden of the report.

NTIG: Only a 1-page report that confirms whether the grant-funded equipment is still operating.

PUCT: Should the grantees report by exception? Meaning, if the grant-funded equipment is taken out of operation, grantee should send report to NTIG.

TCEQ Exec Mgmt: Is this a self report?

NTIG: Yes. And for instance, NTIG could require notification within 10 days of cessation of operation.

TCEQ Legal: NTIG can do that, though similar requirements by TCEQ are not always adhered to.

NTIG: Should NTIG require grantee to notify NTIG within “x” days of a cessation in operation of grant-funded equipment? **VOTE.**

ALL: Yes – quarterly reports. Yes – notification for cessation of operation.

III. Scoring - ACEP & NT categories.....

QUESTION: For ACEP and NT, should EPA Control Costs Manual (6th ed.) be used in determining cost effectiveness?

PUCT: Is the term “auxiliary equipment” defined in Manual?

NTIG: Depends on specific technology being used. The manual is a filter for the applicants to start thinking about where to draw the line between implementation costs/activities and operating costs/activities. Use the Control Costs Manual? **VOTE.**

ALL: Yes.

PUCT: “Engineering” costs could be categorized as implementation or operational.

NTIG: NTIG can refine “engineering” and any other unclear items in the manual.

PUCT: Other unclear terms include construction/field expenses and development of performance tests.

NTIG: This Manual is being used for cost effectiveness calculation, not eligible costs.

PUCT: Why isn’t any capital costs included?

NTIG: The Manual write-up categorizes the costs to show distinction between direct costs and indirect costs.

PUCT: It is tricky to isolate design costs (to either implementation or operation). When a finished product is bought “off-the-shelf” the design costs are part of the price paid. Not the same case here since the technology and installation are separate.

NTIG: The New Technology Research and Development (NTRD) program determines cost effectiveness by the price paid by a consumer and the amount of emissions reduction when compared to a baseline.

TCEQ Air Permits: Regarding allowing indirect costs for non-profits, educational institutions, and government entities, NTIG should do the same for all potential applicants or not at all. Intent of Manual is to prevent regulated sources from inflating the costs of pollution control technology, which could exempt the regulated source from implementing technology if cost surpasses a set limit.

Audience: Would universities be at a disadvantage since the cost effectiveness calculation would include indirect costs that are not included for private companies? Is this Manual being used for cost effectiveness or in determining eligible costs/grant amount?

NTIG: The Manual will have direct effect on the scoring/ranking of an application. Refer to Uniform Grant Management Standards (UGMS) and the Office of Management and Budget (OMB) Circulars for reimbursement guidance.

PUCT: Different projects have wildly different costs, which could distort cost effectiveness comparisons.

TCEQ Legal: The typical usage of the Manual is to show how expensive a control technology will be; NTIG applicants will want to show how cheaply their technology reduces pollution. Also, leaving out such a significant cost as “engineering” in the cost effectiveness determination would be imprudent.

NTIG: Then the same standards for cost effectiveness determination should be applied to all.

TCEQ Legal: Must be done fairly. Also, the dollar amount of “contingencies” from the Manual is unknown, though this amount will not affect grant amount because the applicants must account for such costs in their request.

NTIG: What is the solution? Should all applicants use the same categories of costs when determining cost effectiveness? **VOTE.**

ALL: Yes.

NTIG: Should cost effectiveness be determined by overall costs or by pollutant? Total Capital Investment (TCI) divided by reduction in emission rate

- 1st Approach (overall costs): $TCI / \text{Total Reductions}$
- 2nd Approach (pollutant): $TCI_{NO_x} / \text{Total Reduction}_{NO_x}$

PUCT: For the second approach, will the pollutants be ranked?

NTIG: Yes, NO_x would be the highest ranked. Is the second approach preferred?

Good Company: Not knowing who will apply for NTIG funds, will all applicants be able to reduce the multiple pollutants?

NTIG: It is easier to hide costs using the first approach.

Audience: Rank pollutants by whether they are a criteria pollutant? Rank by pollutants specific to Texas?

NTIG: ACEP category is formally set with regards to which pollutants will be considered; NT category is unsettled. A potential scoring scenario for cost effectiveness could be: 10 points total available for cost effectiveness. 5 of which could go towards NOx; 3 to other criteria or regulated pollutants; 2 to any other pollutants reduced. **VOTE.**

ALL: Yes, to second approach for cost effectiveness (by pollutant).

Audience: The applicant should also do the first approach.

TCEQ Exec Mgmt: There should be no problem for applicants in using both approaches to calculating cost effectiveness. Both are worthwhile calculations and the NTIG Program will be asked to evaluate both when the program is reviewed.

NTIG: The first approach (by overall costs) will have no effect on scoring.

TCEQ Exec Mgmt: Basically what we would want to know is: how much did the technology cost to implement and what is the quantity of pollution this technology prohibited.

NTIG: Should applicants be required to do both approaches? **VOTE.**

ALL: Yes.

QUESTION: Do any of the stakeholders object to using the following hierarchy to rank ACEP and NT applications?

1. Existing facilities reduce emissions in nonattainment areas
2. (Existing facilities) Reduce emissions in attainment areas
3. New facilities with no impact on nonattainment areas
4. New facilities that impact nonattainment areas.

NTIG: Item 4, although a new and cleaner emitting source, the source is still adding to cumulative emissions.

Audience: Is there a distinction between facilities and operations?

NTIG: Stationary sources are the focus of NTIG.

TCEQ Legal: Statute requires NTIG to address facilities and stationary sources not mobile sources.

Audience: What about the example of a switcher locomotive being used at a particular site?

NTIG: The Emissions Reduction Incentive Grants (ERIG) program would be better suited for such a project.

Good Company: In the legislation (House Bill 1796), the definition of a facility is referred to Section 382.003, what is this?

TCEQ Air Permits: Facility = Stationary Source. This does not include mobile sources.

NTIG: Is the preference hierarchy okay to use in NTIG if the third one is re-worded?
VOTE.

ALL: Yes.

IV. Scoring - Electric Storage category.....

QUESTION: Can applicants who demonstrate an environmental benefit in nonattainment areas be given preference over other applicants? Should a method be defined for demonstrating environmental benefits in nonattainment areas?

NTIG: Should the nonattainment preferences for ACEP and NT projects also apply to Electric Storage?

Audience: This category is geared towards renewable energy (RE) and getting more of it to the grid.

PUCT: If the storage facility is remote from the generating source, this is not a bad thing. The storage facility could either be co-located (on site with RE source) or remote, but the closer together the storage facility and the RE source the more likely it is for the RE to reach the grid.

NTIG: If the HB1796 is supposed to cover all types of electric storage then why was “related to renewable energy” included in the legislation? There must be a particular reason why “related to renewable energy” was included.

PUCT: Whether the storage technology is co-located or remote, either scenario has equal potential for arbitrage. Stored electricity could be transmitted to Houston at night, for example, or the electricity could be stored from Houston RE source.

NTIG: It cannot be proven whether the stored electricity actually got to Houston.

PUCT: It can be proven that the stored electricity was purchased.

Good Company: Ancillary sources to the grid, such as storage technologies, should be made more reliable. More RE onto grid will bring more problems with maintaining a constant frequency (base load). Storage is the only way to get this immediate response. More storage technologies integrated into the grid will allow for the buildup of more RE generating sources. The “related to” phrase is not the direct storage of electricity from RE sources. This category should be open to all applicants. Allow the applicant to make their case with regards to RE.

Audience (ERCOT): The integration of more RE onto the grid places a burden on the integrity of the overall system. Without electric storage, the problem is how to transmit the electricity from RE sources to the grid, but with electric storage the problem becomes “will the system be able to accept my generation?” The real value of storing electricity generated from RE sources is the reliability of a particular technology, not arbitrage (store electricity at lowest cost, and sell when utility rates are high). Traditional power plants cannot operate below 75% capacity or they risk shutdown or blackout, so displacing these significant generating sources with RE sources presents many difficulties. Due to the State of Texas’ objectives for getting more RE generating sources onto the grid (wind and non-wind), there are risks associated with system limitations. System inertia, or the capability of the grid to respond to varying levels of electricity supply and demand, becomes a problem when RE sources become the predominant source on grid. System frequency is high when supply outpaces demand; system frequency is low when demand outpaces supply. Governors (installed at coal-fired power plants) can respond to significant fluctuations in system frequency; wind cannot respond to such fluctuations; batteries or storage technologies that can do this are invaluable. So when the wind force is down or declining, these technologies can provide the “ramp-up”.

It is impossible to define which limitation will be the largest source of concern on a RE-dominated grid. It is also difficult to determine which electric storage technology is best to solve whichever system limitation or reliability problem that arises.

In summary, the storage technology can be co-located or remote, this does not matter, and the main concern is to augment ancillary sources (electric storage) on the grid in order to prepare for more RE sources feeding into the grid. The phrase “related to renewable energy” allows for the integration of electric storage technologies anywhere on the grid.

NTIG: If storage from any generating source was the intent of the legislation, why did it not just say “storage of electricity”?

Audience (ERCOT): A battery storage project located on a wind farm in West Texas, that stores at night and transmits during the day, provides less of a benefit than a battery storage project in a Dallas neighborhood (where the demand exists). The latter provides a system-wide benefit.

PUCT: The issue at hand is the phrase “related to”.

Audience: It would be tough to calculate the benefit to a non-attainment area from a storage project.

NTIG: One way to show a benefit in a nonattainment area is to demonstrate that the storage project is powering a certain number of homes that were previously powered by a tradition electric generating facility.

PUCT: “Related to renewable energy” allows for the storage technology to be located anywhere.

Audience: “Related to renewable energy” could depend on the operational goals of the storage facility.

NTIG: How does the grid work? Where should the storage technologies be located to have the greatest impact? Example of wind farm in West Texas versus neighborhood in Houston. How does the location benefit RE?

Audience (ERCOT): In a nodal market, the price is set by the most inexpensive generating sources. There must be capacity to handle the baseload demand, but the next marginal unit of electricity would come from the cheapest, next resource. So if the load goes up from the baseload, then you could say that the next marginal unit of electricity comes from wind generation, for instance. All of this depends on the time of day, demand, supply, and the real time price of electricity, among many factors.

PUCT: The cost of storage is purely additive to the cost of generation. Electricity prices dip at night primarily because of the amount of wind generation (cheapest, next resource).

Audience: At night, others can purchase a wind generator’s “right to generate” to prevent wind from compromising overall system.

PUCT: There is high potential for market distortion because of the intricacies associated with the grid’s operation.

TCEQ Legal: The legislative committee was not thinking about grid reliability when they included the “related to” phrase. The main concern is whether there is a benefit to RE.

Audience (ERCOT): The overall system is changing (transmission lines, smart units, RE sources). ERCOT will need to add reliability capability. It is uncertain which direction to go presently with regards to which storage technology will solve reliability problems, or even which system limitations will be more of a problem. The market must be prodded in

some direction so for now who will foot the bill for the development of these storage technologies?

PUCT: More RE generating sources begets more ancillary services. Gave an example in Presidio where electricity was stored during low peak times.

NTIG: Where should the storage technologies be located on the grid for the most impact?

Audience: Determine whether project adds to transmission congestion.

PUCT: Displaced generation should be considered.

Audience: No difference. Energy losses can come either in the storage or the transmission of electricity.

NTIG: Then the burden is on the applicant to show how their project is “related to” renewable energy. Impact is main determinant of why one project is better than another.

PUCT: Consider step-up and step-down losses.

Audience: Consider the capacity of the grid around the storage project.

PUCT: Central station versus distributed generation, is there a benefit being closer to the load?

Audience: Depends on system conditions which change over short span of time.

TCEQ SIP: Is a storage project required by statute to benefit non-attainment area?

NTIG: These are NTIG preferences. The legislative committee or the TCEQ Commissioners can clarify whether the term “related to renewable energy” means storage of electricity from a RE source. Again, the burden should be placed on the applicant to state their case.

Good Company: As long as all people/companies/groups have the opportunity to apply.

NTIG: Leave it to the applicants to make their case? **VOTE.**

ALL: Yes.

QUESTION: Should the minimal storage capacity to be eligible as an electric storage project be 5 megawatts (MW)?

NTIG: 5 MW as minimum capacity for Electric Storage category?

Audience: There is a 1 MW demo project; 1 MW is a good starting point.

NTIG: 1 MW as minimum capacity for Electric Storage category? **VOTE.**

ALL: Yes.

QUESTION: Do any of the stakeholders object to using the following criteria to evaluate electric storage projects? \$/kWh of output (Capital/Energy/Efficiency), \$/kW (Capital/Unit Power), Capacity (MW), Discharge time, Efficiency, Life at 80% DoD (depth of discharge), and Response time
Experience with electric storage projects

Audience: What about capacity and duration?

NTIG: Showed stakeholders multiple handouts and PowerPoint slides related to criteria for scoring Electric Storage projects.

PUCT: Is there a salvage impact criteria? For example, lead acid batteries would eventually cause problems because it is not safe to dispose of just anywhere.

NTIG: Yes, there is an environmental impact criterion which subtracts points from projects that pose such risks. The various criteria presented were set up as not to give one technology an advantage over another. NTIG is not comparing whether more capacity is better than lower response time, for instance. Is everyone okay with these criteria?
VOTE.

ALL: Yes.

V. Memorandums of Agreement.....

Good Company: Will the NTIG consult the expertise of groups/agencies not mentioned specifically in the legislation?

NTIG: Yes, we may consult with anyone. Presented stakeholders with a proposed application flow chart for each NTIG category.

TCEQ Exec Mgmt: Time frame for the reviews is a key aspect to consider.

Rail Road Commission (RRC): Since the RRC will provide input concerning fuels we are fine with only evaluating those projects that involve fuels. The RRC has no objections to having a limited role in the reviews.

NTIG: Everyone okay with these flowcharts? **VOTE.**

ALL: Yes (for all three)

PUCT: Can PUCT give answers to NTIG at a later time?

NTIG: Yes.

RRC: RRC will need time to answer these questions as well.

NTIG: Okay.

TCEQ Legal: What happens if there is no response from one of the agencies? NTIG should also detail the expectations of the product we receive from each agency.

NTIG: The participating agencies should submit a pass/fail type of document to NTIG, although the PUCT's role will require a more subjective response that will have bearing on NTIG's scoring of a particular application.

PUCT: PUCT would prefer to look at all of the applications side-by-side as opposed to getting a couple at a time. This will enhance the quality of what PUCT submits to NTIG.

NTIG: NTIG will want to get a weight-of-evidence assessment from PUCT.

PUCT: Is PUCT's deliverable a forced ranking of all the applications?

NTIG: No, it is more like a feasibility assessment, not a ranking. The PUCT could put the applications into groups High-Medium-Low, then NTIG will plug that information into what we have scored.

PUCT: PUCT would prefer that those categories (High-Medium-Low) were predefined by NTIG.

NTIG: We will write up the MOA's and send to each of you (RRC, PUCT, and State Comptroller's Office not present). Then we'll get back in touch with you to create scoring guidance.