

*ASERTTI Digester Performance Partnership  
Scope of Activity*

Discussions about the need for a generally accepted methodology or protocol for quantifying the performance of anaerobic systems for manurial biogas production and utilization and the need to establish minimum performance standards began at the AgSTAR National Conference in March 2004 and continued at the Association of State Energy Research and Technology Transfer Institutions (ASERTTI) October 2004 meeting. At both meetings, the attendees agreed that a generally accepted protocol for quantifying performance is a critical need and is a necessary prerequisite for establishing any national database that provides useful information. The discussion at the ASERTTI meeting concluded with the recommendation that a workshop be organized to initiate the process of establishing generally accepted performance assessment protocols for manurial biogas production and utilization systems and to explore options for establishing a national database. With the establishment of standard methods for quantifying the performance of these systems, questions about the validity of the data assembled in a national database should be addressed.

In recognition of the need for general acceptance by the various stakeholders with interest in manurial biogas production and utilization, the following project management approach and protocol development process will be used.

Task 1—Straw Man Protocol Development

The first project task will be the preparation of two first drafts of protocols by Hall Associates for performance assessments for review and comment by a select group of stakeholders at a one-day workshop described below. One of the draft protocols will be developed for comprehensive assessments (case studies) of new design strategies based on the results obtained from a data collection effort over a period of no more than 12 months. The second will focus on assessing system performance stability and reliability over several years. In developing these protocols, consideration will be given to ways for making them complementary to the protocols recently developed by ASERTTI for Distributed Generation/Combined Heat and Power (DG/CHP) Systems. In both draft protocols, the following will be proposed:

- 1) Prerequisites for system performance assessments (e.g. parameters for declaring steady-state conditions, access to design and financial information, etc.),
- 2) Appropriate parameters for quantifying process performance with respect to biogas production, waste stabilization, and biogas utilization (e.g. biogas production rate and composition, total solids and total volatile solids reductions, kWh output and thermal conversion efficiency, etc.) and
- 3) Procedures for economic analysis including definition boundary conditions and estimated rate of return to invested capital after operation, maintenance, and other operating costs (e.g. taxes and insurance).

The draft protocols will be reviewed by the workshop Vice Chairs and a final draft will be sent to the ASERTTI Digester Task Force Chair for final approval.

## Task 2— Workshop Planning

Planning for the workshop will begin with the selection of expert participants for the workshop. Hall Associates will develop a draft list of expert participants with the objectives of ensuring that: 1) all relevant groups of stakeholders are represented and 2) the number of attendees does not preclude achieving all of the workshop's objectives. Thus, the list of invitees will include expert representatives of relevant federal and state agencies, universities, financial institutions specializing in agricultural lending, livestock producers, and consultants specializing in manure biogas production and utilization with a limit of no more than 25 task force participants including the two co-chairs. Task Force Chair, Joe Visalli, will open the workshop, and along with other interested ASERTTI members, will attend the workshop as observers. In selecting workshop participants, Hall Associates will solicit suggestions from appropriate sources such as ASERTTI members, land grant universities, the U.S. Environmental Protection Agency's AgSTAR program, and the U.S. Department of Agriculture. Each ASERTTI member contributing funding to this project shall be given the opportunity to nominate one expert participant to the workshop. The draft list of workshop participants will be submitted to the Task Force Chair for final approval.

Following the selection of expert workshop participants and requesting commitments to participate, a date and location will be established after discussion between Hall Associates and the ASERTTI Digester Task Force Chair. Then, local arrangements will be made by Hall Associates and the necessary information about lodging arrangements, etc. along with a preliminary workshop agenda will be sent to the invitees who have made a commitment to participate.

Finally, the draft protocols developed under Task 1 will be sent to all participants and ASERTTI member observers at least two weeks prior to the workshop to allow the participants and observers time to review the draft protocols before the workshop.

## Task 3—The Workshop

Dr. Norman Scott of Cornell University and Dr. Leonard Bull of North Carolina State University will be invited to serve as workshop Co-Vice Chairs, with Dr. John Martin of Hall Associates to facilitate the discussion of the draft protocols that have been prepared. It is anticipated that the workshop will be held sometime between early to mid-November 2005 and January 2006. All comments and recommendations will be recorded for later summary and inclusion in the final project report. In addition to the discussion of the draft protocols, all workshop attendees will be asked to suggest additional stakeholders for review and comment after the initial drafts are revised and to explore possible options for establishing and maintaining a national database.

## Task 4—Post Workshop Activities

Following the workshop, the initial draft protocols will be revised by Hall Associates to reflect the recommendations of the task force. In the event that there is failure to reach consensus on the appropriate revision for any element of the initial draft protocols, one

recommendation will be selected and the rationale for selection will be included in an appendices to the revised drafts and the final project report. Following the post workshop revisions, second drafts of the protocols will be sent to all of the ASERTTI Task Force members and observers for further review, comment, and possible corrections. In addition, second drafts will be sent to those additional stakeholders identified at the workshop as well as ASERTTI co-sponsors for comment. The second drafts will then be revised by Hall Associates to reflect all additional comments and suggestions in preparation for Task 5. The revised second draft will be sent to the ASERTTI Digester Task Force Chair for final approval prior to Task 5.

#### Task 5—2006 AgSTAR National Conference

The final step in this development process will be the presentation and distribution of the final draft protocols by Hall Associates at the 2006 AgSTAR National Conference, which has been tentatively scheduled for early May 2006. A post presentation questionnaire will be developed and distributed to solicit final comments and suggestions. This questionnaire also will ask for suggestions for establishing and maintaining a national database. Materials will be clearly marked as those of the ASERTTI Digester Task Force and USEPA AgStar Program.

When this task is complete, the final project report containing a brief summary of the process employed for protocol development, the recommended protocols, and an appendix describing the rationale for rejecting some suggestions will be completed and submitted to the ASERTTI Executive Director.

#### Task 6—Post AgSTAR National Conference Activities

Following the 2006 AgSTAR National Conference, a plan for implementing the protocols and developing a national repository of results of assessments of the performance of manurial biogas production and utilization systems using the recommended protocols will be developed and submitted to the ASERTTI Digester Task Force Chair. In addition, a draft request for proposals (RFP) to establish and maintain the database for a period of 10 years will be prepared and submitted to the ASERTTI Digester Task Force Chair. A key element of this RFP will be the requirement of linkage with the existing ASERTTI DG/CHP Database. This will enable users of database information to determine costs and performance to be expected from the DG/CHP system they choose to implement along with manurial biogas production. The draft RFP also will include criteria for evaluating proposals.