



*State of California Department of Conservation*  
**2008 Beverage Container Recycling Market Development  
and Expansion Grant Program**

**“Design for Recycling Bottle Test Center” (Grant 5008-504)**  
**Request for Interest and Qualifications (RFIQ)**

The California Department of Conservation has awarded a grant to the National Association for PET Container Resources (NAPCOR) and the Association of Postconsumer Plastic Recyclers (APR) to find a California college or university partner and propose a testing facility in California capable of testing plastic bottle packaging for compatibility in the postconsumer container recycling stream. The facility, referred to hereafter as the Test Center, is envisioned to be self-sustaining and complementary to the plastics recycling industries’ testing protocols for evaluating plastic bottle concepts for impacts on recycling.

**A. Overview**

NAPCOR and APR seek Statements of Interest and Qualifications from California post-secondary schools with experience and interest in plastics.

Under this RFIQ, NAPCOR requests submissions of Statements of Interest and Qualifications from California colleges or universities as a preliminary screening for a planned Request for Proposals (RFP). Upon review of the RFIQ submissions, certain interested schools may be asked to respond to a full RFP and engage in a competitive process to select a school to develop a Test Center business plan and funding proposal. The partner college or university’s statement should demonstrate the relevance of a Test Center to its institution in terms of experience, academic synergies, and pertinence to long-term goals, as is further detailed in Sections D and E.

**B. Market Discussion**

In 2007, the most recent year with full statistics, over 9.5 billion pounds of plastic were used to produce bottles in the United States. The container recycling rate for 2007 was 24.4%, about 2.3 billion pounds. Approximately 96% of plastic bottles are made from polyethylene terephthalate (PET) or high density polyethylene (HDPE), the two plastic resin types actively sought for recycling.

The plastic bottle recycling industry, served by APR and NAPCOR, seeks more good bottles for recycling. The definition of “good” is important as bottle designers seek new and innovative ways to deliver goods with better protection, greater shelf life, greater consumer appeal, better overall cost, and better environmental attributes. A primary environmental attribute – by any measure of reduced environmental impact – is recycling. Bottles recycled, often to new bottles, reduce energy use, systems emissions, and disposal burdens. Bottles that are incompatible with existing recycling infrastructure

not only deny reclaimers of needed raw material, but also create unnecessary financial burdens as those incompatible bottles generate recycling costs and no value.

Package modifications typically include performance improvements in the bottle construction that enhance the carbon dioxide and oxygen barriers and increase protection from ultraviolet light, but they also encompass a wide range of new closures and labels. Often packaging innovators neglect to fully consider the impact these bottles will have on the existing recycling industry and infrastructure. Some of these innovations have been quite disruptive: a result of limited due diligence, small scale testing, and reliance on anecdotal commentary. Innovations which increase yield losses and processing costs, or otherwise contribute to the degradation of quality of post consumer resins, impact the overall sustainability of the plastic container recycling system. All stakeholders responsible for paying California DOC Processing Fees on plastic CRV beverage bottles risk potential adverse impact when containers are required by law to carry a resin code with a higher processing fee because of container construction.

NAPCOR and APR have published various assistance guides for packaging designers. Included are APR's Design for Recyclability Test Protocols, and key among them are APR's Critical Guidance Documents for HDPE and PET bottles: short lists of sample definition, tests to be conducted, and guidance for interpreting results. Also key are Applications Guidances, longer documents that include the Critical Guidance tests plus specific tests appropriate for specific end uses and guidance for interpreting results. One example of Applications Guidance is the making new bottles from old bottles, so called Bottle-to-Bottle. (View these protocols and documents at: [http://www.plasticsrecycling.org/technical\\_resources/design\\_for\\_recyclability\\_guidelines/index.asp](http://www.plasticsrecycling.org/technical_resources/design_for_recyclability_guidelines/index.asp) )

APR has developed a recognition system allowing companies that submit data showing that their innovation meets or exceeds the APR guidance to be publicly recognized. Recognition can include use of a trademarked logo "Meets Recycling Guidance" that can be authorized for use on retail bottles. Developing the data set for recognition is a for-fee service, conducted by contracting laboratories. With proper controls in place to assure legitimate testing capability and quality control, a Test Center in a California school could become a qualified investigator. The Test Center should be both competent and disinterested. A college or university setting offers an excellent opportunity for fair and complete testing without commercial or political interest or pressures. Such a facility is vital in the development of new packaging concepts that are fully compatible with the PET or HDPE recycling streams. While no protocols yet exist for other plastic resin streams, it is assumed that the Test Center will be able to accommodate future protocols, either for testing new technologies or additional resin streams. The Test Center may have a vital role in developing future protocols. The Center will serve as a neutral forum, where conclusions are data based.

There are private testing facilities elsewhere in the United States that assess recyclability, primarily for confidential reports. The Test Center will certainly accommodate the confidential testing of new or proprietary materials. However, under this proposal, much of the data generated at the Test Center would be intended for publication using established criteria determined by the reclaiming industry itself, such as that represented by APR's Guidance documents. The existing test laboratories, all in the eastern United States, will continue to conduct confidential work and preliminary evaluations. The presence of the Test Center will not make those laboratories obsolete. These laboratories are not able to fill the need that the Test Center will address for the California market. The Test Center can serve as a principal generator of the data package needed for the APR recycling recognition program and will generate this data economically while charging the necessary fees for service to make it self-sustaining.

### **C. Test Center Concept**

This Test Center will be able to effectively and economically perform the full range of tests and protocols necessary to generate the data needed for a petition to receive an APR *recycling recognition* for polyethylene terephthalate (PET) and high density polyethylene (HDPE) bottle packages. The proposed Test Center will be equipped to run all of the test protocols and evaluations in one location and provide independent assessment of recyclability to clients and a data dossier for APR recyclability recognition program petition.

The Test Center should include at least three areas of technical capability and excellence:

1. Ability to conduct plastic recycling unit operations such as are needed to prepare samples for Critical Guidance and Applications testing. These include grinding, elutriation, high shear hot water washing, and sink/float separation in water.
2. Ability to process plastic samples to make injection molded plaques, extrusion blown and injection-stretch blown bottles, and extruded shapes including sheet for PET and HDPE.
3. Ability to conduct testing of plastic items including melt index, intrinsic viscosity for PET, color and haze measurements, DSC measurements, melt filterability, PET solid stating rate measurements, density measurements, environmental stress cracking assessments, impact measurements, spectroscopic assessment of plastic composition and acetaldehyde in PET preforms, bottle top load capability, CO<sub>2</sub> permeation rate in PET, and other typical dimensional and weight measurements. Most tests conform to ASTM standard procedures or those of other organizations such as the International Society of Beverage Technologists.

We do not expect any school to be fully equipped and experienced in all areas. We do expect any prospective partner school to have capabilities in at least one, preferable two or more areas. It is expected that the Test Center would be housed in one building or in

several adjacent buildings. Building space should be sufficient for the work to be done, for student teaching, for development activities, and for the safe handling of materials.

A suitable Test Center college or university partner will have infrastructure and staffing in place to support and further develop certain aspects of the Center that relate to its existing programs in polymers, engineering, environmental science and related fields.

#### **D. Submission Requirements**

The objective of this RFIQ is to establish the level of interest in the project, and to identify prospective participants for the RFP. We acknowledge the time and expenses associated with formulating a response and have therefore sought to keep the requirements for this RFIQ to a minimum. After evaluation of the submissions to this RFIQ, we intend to invite schools to submit full proposals. The RFP proposals will be evaluated in order to determine a preferred partner. NAPCOR and APR are under no obligation to accept any proposal.

Submissions to this RFIQ must include **brief** summary responses to the following in the order listed:

1. School description, including name, address and contact information.
2. An outline of your approach to the project, including the types of plastics processing operation, testing capability, partnerships, and financial plan that would be of interest to your school.
3. Experience in plastics recycling. Please briefly outline.
4. Experience in plastics processing and testing. Please briefly outline.
5. Evidence of conducting financially self-sustaining programs. Please briefly include details.
6. A brief listing of your school's projects involving academic/industrial cooperation.
7. Any additional information on technical and professional competencies relevant to the Test Center concept.

#### **E. Selection Process and Evaluation Criteria**

Selection Process – Representatives from NAPCOR and APR will conduct the partner school selection process. The process through which a school is selected is anticipated to include the following:

1. RFIQ - Responses to this solicitation will be reviewed and a number of candidate schools will be identified using the evaluation criteria noted below.

2. RFP - Upon the completion of Step 1, above, NAPCOR will distribute an RFP requesting detailed proposals for the Test Center.
3. Workshop and Interviews – NAPCOR will invite school representatives to a workshop to more completely explain our vision and receive input from the representatives (prior to the RFP submission deadline).
4. Evaluation – RFP proposals from invited schools will be evaluated using criteria described in the RFP. Site visits are anticipated. Representatives from NAPCOR and APR will select a partner school.
5. Memorandum of Understanding (MOU) - An MOU will be executed between NAPCOR and the partner school to establish working procedures and next steps. During this time it is expected that the partner school and NAPCOR will conduct detailed feasibility analysis and prepare a business plan with a three year financial pro forma. The pro forma will incorporate the inherent symbiosis between the partners and best leverage efficiencies, for both financial and work-flow planning
6. Using the Business Plan and Pro Forma, identify the financial resources (both capital investment and operating capital) required to build and run the Test Center.

The Business Plan / Pro Forma will fully detail the capabilities and ongoing viability of the Center, as well as its financial requirements. It will lay the groundwork for outside investment by detailing the Center's plans for running the full APR-defined testing protocols, as well as additional research capabilities; and the curriculum and teaching benefits afforded to the college/university partner.

The Plan will specify the financial requirements necessary to both build and equip the Center and get it to full self-sustainability, the **Step II** phase of this overall project. Potential capital investment start-up funders may include, but are not limited to, the college/university partner, the California DOC Beverage Container Recycling Market Development & Expansion Grants program, APR, NAPCOR, and other private funding sources or endowments.

There are various constituencies previously mentioned that require the services of an independent Test Center and their payment for service will form a substantial part of its ongoing financial sustainability. However, we also expect to see funding from currently underserved demand in the marketplace, such as plastic recycle end market development. At present it's very difficult for the plastics reclaimer community to trial or develop new applications within their own plants. Parties interested in using recycled plastics may have the same issues. The Center would provide this capability and we anticipate additional operational funding from this type of work and similar untapped demand.

Criteria - Criteria that will be used to evaluate responses to this RFIQ include the following:

- The respondent's written statement of interest and qualifications and its vision of the project.
- The respondent's experience and technical competence in implementing successful industrial cooperation projects of similar nature and scope.
- The respondent's interest in plastics: recycling, processing, and testing.

**F. Contact**

The Statement of Interest and Qualifications should be sent, faxed or emailed to:

Kate Eagles  
National Association for PET Container Resources (NAPCOR)  
PO Box 1327 (shipping: 17474 Sonoma Hwy., Sonoma, CA 95476)  
Sonoma, CA 95746

Tel: 707-996-4207, x16    Fax: 707-935-1998  
[keagles@napcor.com](mailto:keagles@napcor.com)

You will receive a confirmation that your RFIQ has been received.

**G. Timing**

The Statement of Interest and Qualifications must be received by June 1, 2009 since the Request for Proposal (RFP) is scheduled to be issued in July. The final Proposals will be due in October 2009 and NAPCOR/APR will host at least one Workshop session in September (date to determined) to provide additional information and solicit questions and feedback. Partner school selection is anticipated in February 2010; business plan completion by May 2010.

**H. General Conditions**

Neither NAPCOR nor APR make any representations or warranties whatsoever with respect to this RFIQ including, without limitation, the accuracy or completeness of any information or assumptions contained in or provided in connection with this RFIQ or otherwise furnished to respondents. Neither NAPCOR nor APR warrants success of the proposed Test Center or indemnifies any party for the use of protocols or guidance documents or accepts liability for the siting, design, construction, operation, generated results and conclusions, or financial status of the Test Center.

Each respondent shall make its own analysis and evaluation of the RFIQ, including without limitation, the appropriateness of the respondent's participation in the Test Center development project, the cost of RFIQ and RFP preparation, and the long term commitments involved in developing a self-sustaining test center.

Notwithstanding this RFIQ, NAPCOR may invite respondents and others to participate in a further competitive process to determine a partner school. In addition to those terms and conditions stated elsewhere, this RFIQ is subject to the following:

- a. Respondents must comply with all applicable federal, state and local laws and regulations.
- b. Neither NAPCOR nor APR will pay for or refund any costs and expenses incurred by any respondent in responding to this RFIQ or subsequent RFP.
- c. All determinations as to the completeness or compliance of any proposal or as to the eligibility, qualification or capability of any respondent will be within the sole and absolute discretion of NAPCOR.
- d. Selection or designation of any respondent of a proposal pursuant to this RFIQ will not create any rights for the respondent including, without limitation, rights of enforcement, equity or reimbursement. NAPCOR shall have no obligation or liability whatsoever to any person or entity whose proposal is selected or designated as a result of this RFIQ unless and until a Memorandum of Understanding has been fully executed and delivered by all parties and all necessary consents and approvals necessary for NAPCOR's entry into such agreement have been obtained, and then all such obligations and liabilities shall be solely in accordance with the terms and conditions of such agreement.
- e. If it is deemed in the best interest of NAPCOR to do so, this RFIQ, or any subsequent RFP, may be reissued, amended or withdrawn in whole or in part at any time, including without limiting the foregoing, after proposals have been submitted. Issuance of this RFIQ does not obligate NAPCOR to undertake any action.
- f. By submitting a Statement of Interest and Qualifications, the respondent agrees to be bound by all the terms and conditions of this RFIQ.