COMMENTS ON THE SUMMARY OF REVISED RESEARCH PLAN FOR THE U.S. CLIMATE CHANGE SCIENCE PROGRAM

SUBMITTED BY

THE WATER UTILITY CLIMATE ALLIANCE

DENVER WATER
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
PORTLAND WATER BUREAU
SAN DIEGO COUNTY WATER AUTHORITY
SAN FRANCISCO PUBLIC UTILITIES COMMISSION
SEATTLE PUBLIC UTILITIES
SOUTHERN NEVADA WATER AUTHORITY

FEBRUARY 26, 2008

I. Background Information

Name: David Behar
Organization: Water Utility Climate Alliance (see Section II below)
Mailing Address: San Francisco Public Utilities Commission
1145 Market, 4th Floor
San Francisco, CA 94103
Phone: (415) 554-3221
Fax: (415) 934-5770
Email: dbehar@sfwater.org
Area of Expertise: Water supply, water system operations and modeling, water quality, wastewater and stormwater systems, hydrology, planning, infrastructure, policy.

II. Preface – Regarding the Water Utility Climate Alliance

The Water Utility Climate Alliance (WUCA) consists of eight of the largest water providers in the United States who together deliver drinking water to over 36 million Americans. These utilities are:

Denver Water
Metropolitan Water District of Southern California
New York City Department of Environmental Protection
Portland Water Bureau
San Diego County Water Authority
San Francisco Public Utilities Commission
Seattle Public Utilities
Southern Nevada Water Authority

The Alliance has active participation at both the general manager and staff level, and has been meeting since mid-2007. Our mission statement reads:

> *'The Water Utility Climate Alliance is dedicated to providing leadership and collaboration on climate change issues affecting drinking water utilities by improving research, encouraging the development of adaptation strategies and creating mitigation approaches to reduce greenhouse gas emissions.'*

These comments on the Revised Research Plan of the CCSP are the collective work of the member agencies of the WUCA.

III. General Comments

First General Comment: Over the past year, the Water Utility Climate Alliance has met at the staff and general manager level to assess and improve our individual and collective response to the climate change-related challenges our agencies face. In that process, we have identified several key research and information needs that would improve the water industry's ability to identify potential impacts from climate change and develop appropriate adaptation strategies. Because climate change information is needed on a national or even global perspective, municipalities are not well-suited to meet these climate change information needs on their own. This situation requires strong federal participation in meeting the needs of municipalities for

research and information related to climate change. These needs include, but are not limited to, the following:

- Improving the quality and accessibility of regionally-resolved information regarding climate impacts on temperature, precipitation patterns, hydrology, water quality, extreme events and ecosystems.
- Reducing uncertainty in projections of how the climate may change by improving and refining the GCMs and downscaling techniques used to project climate changes.
- Developing decision support tools for planning, decision making and policymaking that can accommodate deep uncertainty and the potential for abrupt climate change.
- Enhancing the collection, maintenance, and accessibility of data and key databases and making the data more useful for decision-making purposes.
- Coordinating international research and cooperation, particularly with regions of the world that are arguably experiencing the effects of climate change now, such as Australia.
- Ensuring that water utilities throughout entire U.S. have access to regional climate information and technical expertise that is currently provided through federally-sponsored programs such as RISA.

We urge the CCSP to support research that will help to address these critical needs. According to a 2005 EPA report, the drinking water sector will need to invest $277 billion by 2023 to "install, upgrade or replace equipment in order to deliver safe drinking water and protect public health." While water supply systems are typically financed and managed at the local level, federal leadership in climate change research is required if the nation is going to have a credible and timely response to the challenges of climate change. Investments in drinking water infrastructure must be informed by climate change projections that are as accurate as possible. These projections will be key inputs into decision support systems currently being developed to cope with climate change effects. More accurate climate projections coupled with more robust decision support systems will help to provide the information necessary to protect the substantial infrastructure investments needed to continue to provide clean and sufficient drinking water supplies to our ratepayers.

Reviewer's Name, Affiliation:

David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Second General Comment: It is unclear to what extent the CCSP is a program with the requisite authority, both institutional and budgetary, to coordinate, prioritize and establish the federal government's climate research priorities across thirteen agencies. The Revised Research Plan notes that each of these agencies have their own priorities, but what those priorities are, how they are established and how they complement the priorities of the CCSP is not discussed in the Revised Plan. We urge that the research plans and priorities of each of the CCSP member agencies be published as part of the CCSP Research Plan revision process. Further, we believe the CCSP Research Plan should account for how those individual agency plans and priorities should or will be balanced with one another and in conjunction with the CCSP program to produce a coherent, coordinated, and cohesive federal research strategy on climate change.

Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Third General Comment: The goals of the CCSP should include an explicit reference to engaging and communicating with practitioners to solicit their input in framing current and emerging research priorities and in disseminating the results of CCSP research so that research products are both relevant and utilized. In particular, the CCSP should cultivate partnerships with the water utility sector given the responsibilities water utilities have for providing a key service that may be disrupted by climate change, the sector's ongoing involvement in climate research and the sector's understanding of key research and information gaps that need to be addressed to better prepare and adapt to the impacts of climate change.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Fourth General Comment: The maintenance of databases should be emphasized as much as conducting more research. For the purposes of this comment, database maintenance includes added automation of data collection stations, web access to data sets, landsat thermal band data, and clear statements about the caveats to various data sets. Database maintenance is critical because if there is not sufficient data with enough time series or from geographically representative sites then it is difficult to create models that will accurately replicate the real world or to assure water managers that the results are within realistic bounds. Understanding trends in real time has high importance to water resource planning and the decisions needed to address these trends and projections of future climate changes.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Fifth General Comment: We are commenting here on the "Summary of Revised Research Plan for the US Climate Change Science Program" but we have not seen the actual Research Plan which this document presumably summarizes. Does a full Research Plan exist and, if so, is it available for review?
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

IV. Specific Comments

Page 3, Lines 12-15: We reiterate the importance of the CCSP reaching out to the user community with regard to the cross-cutting elements and working groups mentioned here in order to develop robust partnerships.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 3, Lines 32-34: The CCSP should hold more workshops such as the one mentioned here, but ensure that the user community is an active participant. The attendee list from this workshop is extensive but it is apparent that only a small percentage of the attendees represented water utilities, even though utilities have a practical need for decision support tools. Broad utility attendance and participation in such events would help insure that the research and work CCSP supports is more applied and less academic.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 5, Lines 43-44: We strongly support the recognition of the critical role of robust partnerships and urge the CCSP to make the development and cultivation of these partnerships a top priority
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 6, Lines 21-22: We recommend that the CCSP rely not just on public input that results from publication of this Summary but also create partnerships with specific sectors, such as the water sector, to create mechanisms for ongoing engagement and discussion.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 8, Lines 44-50: Please specify what additional studies CCSP will foster and what the timeframes and milestones will be for these studies. This is another potential area for collaboration with the water sector.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 10, Line 34: To be useful to water resource managers, the end-to-end hydrologic projection discussed on page 10 will require development of a modeling framework that can be applied at a regional or local watershed scale.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 10, Line 40: Insert urban drainage and river flooding into the list of issues affected by climate change.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee

Page 10, Line 44: Insert land use into the list of elements of the Generalized Hydrological Modeling/Prediction Framework.
Reviewer's Name, Affiliation:
David Behar, Staff Chair, WUCA; Paul Fleming, Chair, WUCA Science Committee