Subcommittee I—Diversity

August 13, 2009

I. INTRODUCTION

NCAR’s responsibilities, as a national center, include both advancing science and serving society. Our ability to do both will be enhanced if we diversify our workforce to better reflect and leverage the changing demographics of the US and the world. Scientific understanding is enhanced by diverse conceptual approaches, since multiple perspectives will be closer to approximating the “truth” than any single perspective. Evidence suggests that creativity and problem solving improve in diverse teams.\(^5\) Since both are prerequisites to scientific insight, this implies that scientific teams will be well served by diversity. It also argues for careful management to create well functioning teams that leverage the advantages of diversity.

As an institution that receives federal funding, NCAR accepts a commitment to do science that addresses the priorities of all US communities. Service to a community depends on knowing the needs of the community, and we are more likely to know these needs when our workforce includes members of the community. Likewise, communities are more likely to use and benefit from research when they have had the opportunity to participate in setting the research agenda. If NCAR is to follow this more participatory model, we need a workforce that can connect with diverse communities.

Pursuing diversity now positions NCAR to have a stronger workforce in the future. Increasing diversity is also a pragmatic goal. By 2039 the United States will be a Majority-Minority nation, meaning that members of traditional minority groups will collectively outnumber the historic majority. The U.S. Census Bureau tells us that by 2050 we

\(^5\) Groups of diverse problem solvers can outperform groups of high-ability problem solvers. Lu Hong and Scott E. Page, Proceedings of the National Academy of Sciences, November 16, 2004, vol. 101, no. 46, 16385–16389
see even larger shifts. For example, Hispanics will comprise nearly one-third of our working population. This relates to the entirety of NCAR, not only its scientific staff.

Finally, because our democracy provides the opportunity for every community to weigh in on the value of an institution, NCAR needs to engage every community as a partner in the scientific process to ensure its continued relevance and fiscal health.

Two obstacles to realizing the vision of a diverse NCAR workforce are the homogeneous local demographics of Boulder, CO and nationally the low rates of minority participation in science, especially the geosciences. Our survey of peer institutions tells us that other institutions also face these barriers to diversity.

These factors neither excuse our current lack of diversity nor negate the need for more diversity; rather they require a comprehensive and proactive strategy to increase diversity. NCAR must work externally to diversify the pool of candidates available for all jobs, especially those in science and engineering, and internally to build awareness of and opportunity for diversity. Indeed, NCAR and UCAR have placed significant effort into successful endeavors such as SOARS (Significant Opportunities in Atmospheric Research and Science), and the ASP’s Faculty Fellowship Program.

In summary, NCAR must diversify its workforce to meet its mandate to do innovative science relevant to an increasingly diverse Nation. To address our ongoing responsibilities as a national center, NCAR must extend its research, education, and service to new communities and work internally to maximize opportunities for diversity.

II. EXTERNAL EFFORTS

NCAR is a center for scientific interaction including a highly skilled network of collaborators. This has historically been a key part of our successful efforts to recruit and retain a talented workforce and to understand relevant science agendas. Most NCAR scientific hires are people already known to NCAR, either as post-docs, visitors, or current employees. A current snapshot shows that less than one-third of our Ph.D. level scientific staff is hired from outside of NCAR. Many NCAR scientists are first NCAR Post-doctoral fellows and many of our Postdocs are already known to NCAR through previous collaboration or are recommended by those who already collaborate with NCAR. While we have made exceptional hires through our network of collaborations, the network is no longer sufficient to produce the kind of diversity in hires necessary to respond to changing demographics.

We identify several steps to take that will continue and enhance NCAR and UCAR’s diversity efforts to broaden participation in atmospheric and related sciences.

Recommendation 1:
Build sustained partnerships with schools that educate a large percentage of minority students.

Our experience and the experience of peer institutions shows that collaboration with minority serving institutions, like all collaborations, must be planned, funded and sustained. NCAR should expand its partnerships with minority institutions engaged in atmospheric sciences education and research activities. NCAR should engage over the long-term, listening to priorities, assessing our ability to collaborate around those priorities, and committing resources to partnerships that serve minority-serving institutions and also return to NCAR an increased understanding of the society we serve and the science in which we engage.

NCAR should expand on existing MOUs, or create new ones, that allow a robust and sustained program with approximately five minority serving institutions (MSIs). As part of the program with each MSI, NCAR should consider funding sabbaticals for faculty and opportunities for students as a high priority. NCAR should also promote and provide opportunities for NCAR scientists to visit these universities. Providing job opportunities for individuals who are known to NCAR and have demonstrated excellence has served NCAR well and these efforts will expand our opportunities not only to engage in socially relevant science, but to expand our network of participants.

NCAR can also be creative about exposing science and our facilities to a broad range of students, with a particular focus on gaining the interest of underrepresented youth in science and technology careers. For example, the NSF recently reserved a portion of the Deployment Pool of funds ($100,000) for use by educators wishing to gain access to observational facilities for classroom instruction and hands-on learning experience. NCAR/EOL will work with MSIs so that they will be able to submit competitive proposals that will result in the deployment of NSF observational facilities to their campuses.

Recommendation 2:
Expand the graduate fellowship (GRA) program and reach out to diverse graduate students to participate in NCAR.

NCAR should fund approximately ten new GRA positions on an annual basis, at least two positions for each of the five MSI partners. The graduate fellowship experience is particularly important in competing for the post-doctoral positions which are a gateway to scientific appointment.

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7 As an example of the rich possibilities of sustained partnerships, since becoming a member of UCAR in 2000, Howard University has graduated 10 Master’s students and 6 PhDs in atmospheric science, all of whom are closely tied to NCAR. These students have participated in WRF workshops, SOARS, and visited NCAR through the Advanced Study Program. It is only a matter of time before one of them ends up a permanent employee of NCAR.
Recommendation 3:
Continue to expand summer intern programs.

This is a proven vehicle to expose those from diverse communities to our organization, to advance their technical and other job-related skills, and for NCAR staff to learn with members of diverse populations. In addition to expanding ongoing programs in RAL, EOL and CISL, a program needs to be created in what is now ESSL. These programs should work collaboratively with SOARS, which has 14 years of success in supporting and encouraging students from under-represented groups to seek careers in the atmospheric sciences.

Recommendation 4:
Explore best practices from our external survey and integrate those that fit our institution.

Among others, Lawrence Berkeley Laboratory, the University of Washington and NOAO have innovative programs that yield results.\(^8\)

Recommendation 5:
Recruit additional Minority Serving Institutions to become members of UCAR and contribute to NCAR governance.

Recommendation 6:
Develop research collaborations that link atmospheric science with the priorities of diverse communities.

In order to serve society, NCAR must understand how its expertise can serve the diverse priorities of all communities, especially communities who have been historically underserved by science. To do this, NCAR should develop a research agenda that can contribute to broader societal goals. The priorities of underserved communities often lie outside the specific boundaries of atmospheric science, but require atmospheric science knowledge. For example, weather and climate research can and should inform planning around issues as diverse as public health, sustainability, energy, and even economic growth – all important to many diverse communities. NCAR should partner with diverse communities and populations, to contribute its expertise to a broader scope of societal interests, and, even more importantly, create venues for those communities to help shape the research agenda in atmospheric science and NCAR.

III. INTERNAL EFFORTS

The strength of a great National Center depends on its inclusiveness. A measure of such inclusiveness is the gender and racial diversity of staff at all levels, and support for each employee’s success. But a diverse workforce alone is not sufficient; NCAR must develop and implement strategies to ensure that diversity is leveraged as a competitive advantage and to align our practices with our values.

\(^8\) The University of Washington ADVANCE programs successfully recruits women. NOAO works with Vanderbilt and Fisk on a “bridge program” to prepare students for PhD programs, funded by NSF and NASA. Lawrence Berkley National Laboratory engages employees in a Best Practices Diversity Council.
**Recommendation 1:**
**Continue to provide resources and incentives to those who promote and enhance diversity.**

Each laboratory should continue to set aside funding at the beginning of the fiscal year to engage in such activities. Additionally, the NCAR Director’s Office and UCAR should continue providing funding for such purposes. These funds should be awarded competitively and the funds may be part of, or in addition to, programs conducted to build and sustain partnerships with minority serving institutions.

NCAR should recognize and acknowledge employees who demonstrate an awareness and commitment to a diverse and inclusive workforce. This includes a section in UCAR’s Annual Performance Appraisal documenting diversity-enhancing activities, and adding diversity efforts to UCAR’s Outstanding Accomplishment awards.

Hiring entities should provide funds for relocation of candidates for jobs where local demographics and/or unique expertise make diversity particularly challenging.

**Recommendation 2:**
**Monitor institutional progress toward diversity goals.**

Each year UCAR prepares an Affirmative Action Plan that measures our hiring, promotion and compensation practices. We are pleased that overall this Plan has shown an absence of adverse impact in our practices. The Diversity Subcommittee also engaged in an extensive look at historical practices, particularly for jobs where we have an underrepresentation of female or minority employees. While we find an absence of discriminatory practices we do find patterns of recruitment, such as using our existing networks, which fail to produce diverse candidate pools. In addition to the external activities described above, NCAR can take specific measures to promote progress in this area:

- Provide hiring supervisors with the data necessary to evaluate their own success in recruiting. This means educating hiring supervisors on market availability and demographics for jobs where we have persistent underutilization, and routinely evaluating the demographics of the qualified applicant pool to assess recruitment and selection effectiveness.

- Remain alert to and address institutional practices that reflect bias, or unfairly advantage or disadvantage some groups. For example, studies have shown that a female’s contribution to cooperative work tends to be under-valued in tenure decisions at many institutions. External and internal audits can help identify unfair practices.

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9 Five laboratories/programs currently budget $20,000 each for diversity programs, and the NCAR Director’s Office provides matching funds, for a total fund of $200,000. In addition NCAR allocates $141,755 for activities specific to diversity.
• Continue to measure our progress and fully communicate our metrics to management staff and hold them accountable for improving areas of underutilization or unfair practices.

• Require that all search and selection committees be comprised of both male and female staff members and include ethnic diversity to the extent possible.

**Recommendation 3: Develop conscious strategies to leverage diversity.**

In order to realize the advantages of diversity, an organization has to change in response to the input, ideas, and customs of new employees. We need to ask for, evaluate, and honor new strategies and approaches; and even open up the discussion to include new problems.

• Create continued opportunities for dialog with diverse staff. Such dialog should focus on both the unique needs of NCAR’s minority staff, as well as the unique skills and attributes that they bring to the workplace. The Asian Listening Circle is a model of this process and should be repeated for other affinity groups.  
  
10 (A listening forum for disabled employees is in the formation stage.)

• Identify training and mentoring needed to equip talented staff to progress, particularly in job groups where there is a history of underrepresentation.

• Identify and invest in training and mentoring needs for managers so that they can best understand how to leverage the unique contributions of diverse employees, and can ensure equal opportunities for success of these employees.

• Improve policies that support diverse staff, such as “stopping the clock” for our scientists and greater application of flextime and leave.

• Provide affirmation and where needed, seed funding, for employee-initiated efforts such as the Communicating Science Program.  

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10 During the course of developing NCAR’s Workforce Management Plan we engaged in an Asian Listening Circle as a first step in understanding the priorities of this minority group. This group suggested a) building awareness of cultural differences regarding assertiveness, b) providing technical writing resources for those whose first language is not English and c) providing mentors to those who request guidance, and d) helping NCAR identify and adopt practices and ideas from Asian cultures and could improve NCAR’s operation.

11 The Communicating Science Program seeks to equip UCAR and NCAR scientific and technical staff to be world-class communicators by engaging them in identifying and developing learning opportunities, experiences, and resources to enhance their skills in oral and written communication. Specifically, the ESL program helps scientific staff for whom English is a second language and includes cultural awareness for those traveling abroad.
Subcommittee II—Environmental Scan

August 6, 2009

An environmental scan provides context and data for strategic and workforce management planning. It helps our decision makers and staff develop a common perception based on accurate data and shared knowledge. It identifies strengths, weaknesses, trends, and conditions. It draws on internal and external information. An environmental scan is key to an ongoing process for internal and external openness and responsiveness to changing conditions.

I. BACKGROUND AND PROCESS

There are many approaches to environmental scanning including research, data collection and analysis, surveys, open forums, and self-assessment. We began the process by working closely with each of the WMP subcommittees to identify their issues and ask what internal and external data and information would be useful to them.

Together with the subcommittees, WMP Executive Committee, and NCAR staff we developed the following list of categories for scan data:

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<th>Internal:</th>
<th>External</th>
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<tr>
<td>Human Resources data and charts</td>
<td>Peer institution survey results and summary</td>
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<tr>
<td>UCAR and NCAR Policies and Procedures</td>
<td>Detailed data from peer institutions</td>
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<td>Institutional metrics</td>
<td>Web research on policies, procedures, practices and source documents</td>
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<tr>
<td>Survey/discussion with directors and</td>
<td>Diversity data</td>
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<td>Workplace Climate Survey</td>
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II. INTERNAL SCAN

Our internal scan data focuses primarily on information from UCAR Human Resources and on staff surveys. NCAR Human Resources data covers topics ranging from staff employment data and demographics to UCAR policies. Please note that most of the HR data is filtered to reflect only NCAR staff (not UCAR and UCP) for the purposes of this NCAR WMP. When appropriate, all UCAR employees are included, and this is duly noted.
Figure 1: Number of staff (FTEs), by category, from 1997 to 2009, taken on July 1 of each year.

Figure 2: Average time in position by major job categories at NCAR as of June 2008.
Our internal scan also includes a survey/discussion with lab and division directors and administrators that highlighted the need for continued efforts to:

- increase transparency at the lab and division management levels,
- communicate management priorities and approaches,
- educate staff about current common and unique administration practices,
- continue to discuss best practices and brainstorm solutions.

413 NCAR employees participated in the Workplace Climate Survey answering questions about many of the aspects of the UCAR/NCAR environment. This survey was a follow on to a survey conducted by the American Physical Society's Committee on the Status of Women in Physics (CSWP) conducted in 2000. The goal of the survey was to explore UCAR employees' perceptions of their workplace. UCAR Human Resources downloaded the synthesized survey results for the President's Council, the Executive Committee for the NCAR Workforce Management Plan, and the ad hoc committee of female scientists who are working with the CSWP. These groups met to analyze the aggregate results and are working to develop strategies to address outstanding issues. A final report will be available to all staff upon the completion of this process.

The Diversity Committee collected and analyzed data on internal and external diversity and staffing to understand the context and impact of UCAR diversity goals and results.

III. EXTERNAL SCAN

Our external scan data were gathered from surveys of peer research centers and universities and Web research on their policies, procedures, and practices. Representatives from UCAR, NCAR, and the UCAR Board of Trustees interviewed the leaders of 16 peer institutions ranging from universities (5) to non-profits (2) and national and international government/research centers or
NCAR also participated in the survey. The survey allowed us to learn more about approaches to recruiting, retaining and engaging staff, setting workforce priorities, and achieving workforce management goals. A brief summary follows.

**Attracting/Retaining/Developing.** Across our community, recruiting appears to be a level playing field based on common compensation systems and models for support staff. Work-life balance programs, correlation between individual and institution mission, and workplace location may impact recruiting.

Retention may be impacted by institutional expectations of staff (e.g. 90% mission-based research/10% individual research or 50% individual research/40% teaching/10% service). These expectations often also involve requirements for obtaining external funding ranging from 0% to 100% depending on the institution.

Very few institutions have formal mentoring programs. Most have merit pay and award programs to recognize and reward employees within budget and funding constraints. All have annual events to celebrate achievements or create opportunities for staff to socialize. Performance evaluation models vary from traditional narrative/bilateral communications to ranking and rating systems with limits. Some institutions have standardized performance evaluation assessments across the organization.

**Promotion/tenure or similar processes.** The universities in the pool have traditional tenure systems for promotion, while most government labs follow a civil servant model. Internal funding commitments varied for the university respondents with tenure systems. Most tenure systems do not include post-appointment reviews with consequences from a negative review.

**Diversity.** Organizations are focusing on recruiting and building relationships with minority-serving partners, and recognize that there is a common problem with lack of diversity in the pipeline and competition for highly qualified candidates. Work continues at all institutions on how to improve strategies and accountability.

**Web research.** Web research produced hundreds of pages of sample policies and procedures in the areas of training, performance reviews, awards/bonuses/incentives, compensation, promotion, tenure, termination, hiring, retention, leave, other workforce policies, benefits, and visitor programs.

## IV. ENVIRONMENTAL SCAN GOALS

**Desired state:**
Consistent transparency on procedures and practices across divisions and labs.

**Current state:**
NCAR relies on an extensive network of management and administrative staff with expert institutional knowledge and solid administrative skills. Minimal documentation of processes and limited proactive communication with staff result in only partial transparency and a lack of knowledge of business operations at the regular staff level.
Recommendations:

- Increase transparency and collaborative efforts to determine and implement best management practices across labs and programs. Management and staff benefit from the improved openness, communication, and accountability resulting from transparency.

- Continue work on the NCAR Administrators’ Users Manual to document and standardize or customize lab and program processes and practices where appropriate.

- Expand new employee orientation at the lab/program level to include an introduction to lab procedures, committees, and resource people.

- Provide regular opportunities for staff to learn about changes in procedures or staff responsibilities and review summaries of lab management protocols through town meetings, staff newsletters, and Web pages.

- Continue and expand on lab/program administrator meetings and teamwork.

- Hold annual administration retreats to learn about and implement best practices.

Desired state:
Conduct and publish regular environmental scans to support informed decision making and transparency.

Current state:
There are extensive data in systems and databases throughout the institution. The information is analyzed and shared in presentations and periodic communications. Detailed scans are conducted in response to specific requests or communications with high-level audiences.

Recommendations:

- Increase transparency and institutional knowledge about internal and external workforce data and trends to improve informed dialog with staff and increase knowledgeable decision making at the individual and institutional level.

- Review the data collected and determine a set of standard institutional workforce metrics.

- Publish the workforce metrics to staff on an annual basis.

- Standardize definitions and report on trends to provide context and a baseline.

- Continue to dialog and share information with peer institution leadership to keep channels of communication open and external data available and current.

- Invest in reporting tools, training, and resources to support scanning.

- Support the newly created UCAR Ombuds Office with accurate and current data.
**Desired state:**
Fully equip and support supervisors to effectively manage their teams

**Current state:**
Supervisor training is available but not required. Supervisors often rely on experience, education, and informal mentoring to build skills and expand their knowledge.

**Recommendations:**
- Increase training and support networks for supervisors.
- Expand on professional development courses for leadership and supervisors.
- Customize training and materials on business operations from a supervisor’s perspective.
- Support calibrating HR functions of supervisors of similar teams (performance evaluations, reclassifications, disciplinary actions, salary increase recommendations, and project management) to empower the supervisor and assure equity across the institution.
- Emphasize and reward continuing education in management/administration as part of the annual evaluation process.
- Continue the Leadership Assessment and Development (LAD) process – surveying direct reports and colleagues for feedback on supervisors’ strengths and areas for additional work. Incorporate career coaching and professional development into the follow-up on the LAD.
- Create a network for supervisors to share best practices, mentor, and problem solve together.
- Share comparison and detailed workforce data with supervisors and supervisors of supervisors to provide solid data for planning and improvements.
- Educate and support supervisors in matrix and project management to maximize team potential and maintain good communication and productive staff.

**Desired state:**
Incorporate workforce management planning into the Annual Budget Review process and the development of operational as well as strategic plans.

**Current state:**
In 2009 we developed a new NCAR strategic plan and the workforce management plan. Our emphasis has been on developing and prioritizing imperatives and frontiers, and identifying action items to meet these goals. Workforce planning and assessment within the context of the strategic and future operational plans is an essential component for success.
Recommendations:

- Integrate workforce planning into NCAR strategic and operational planning and resource allocation.
- Include workforce data collection and reporting and projections in the Annual Budget Review process.
- Create and implement methodology projecting WMP recommendation costs.
- Conduct regular internal assessments of workforce needs and gaps.
- Support matrix and project staff management.
- Prepare for the redirection of the workforce to meet future requirements through long-term planning and investments in professional development for staff.
- Invest in workforce planning through training, recruiting, increasing diversity, retaining, and recognizing staff.
- Partner with the research and university community to plan for the future NCAR and community workforce.

As we compiled the lists and worked on the scan we faced some of the challenges common to conducting environmental scans:

- Too much data and analysis paralysis – the sheer quantity of requested data and analysis may threaten to overwhelm or delay the decision-making process itself. **Solution:** Close collaboration between the data stewards, scan committee, and subcommittee members to tailor the queries and ensure that the data is relevant and helps us ask or answer the question.
- The perception that the data are already in and nothing has changed. **Solution:** Checking early data and initial results against currently held assumptions to identify and confirm areas experiencing change or innovation.
- The concern that even if there is new information, it won’t change how business is conducted because of substantial investments in current programs and firm cultural traditions or that the new plan has already been decided on and this data and effort won’t change the predetermined outcome. **Solution:** Demonstrated commitment by NCAR and UCAR leaders and staff to support and engage in the workforce management process through participation, transparency, regular updates, investments, and well-reasoned decision making.
- Worry that the public airing of major or sensitive issues may increase dissent and could add to problems.
**Solution:** Balance public discussion with internal and external data and goal setting that focuses on facts and solutions instead of anecdotes and problems. There is an opportunity for dialog and creating ownership in the plan when all participate in good faith. Staff and leaders are communicating, learning, and brainstorming together and the plan will be better for it.

- The need to understand that change takes time, energy, and funding.  
  **Solution:** Continue scanning and tracking change and improvements during the development and implementation of the plan. This will ensure that progress is being made, investments are paying off, and staff are recognized and celebrated for their efforts and accomplishments. Use this opportunity to make course corrections or propose plan revisions.

Our environmental scanning exercise was designed to support the development of the workforce management plan and strategic planning process with the goal of providing strategic intelligence on internal and external conditions. These data were useful in the planning process and in determining organizational strategies to recruit, retain, engage, develop, and reward staff.
Subcommittee III—Staff and Visitor Balance

August 14, 2009

1. SUMMARY OF PROCESS

The WMP3 subcommittee charge is

To assess the makeup and career paths of NCAR staff and recommend changes, as needed, in order to advance NCAR's scientific leadership and service to the university and broader scientific community.

During its early deliberations, the committee defined two overarching questions related to this charge:

1. Makeup of staff: Do we have the balance and breadth of staff to support the NCAR strategic science and service objectives?

2. University collaborations: Are we making the most of interactions with universities to further science and service objectives?

Data to address these questions were collected by the subcommittee in the form of external scans of peer institutions and time series of numbers of NCAR staff in each job category from 1997 through 2008. These were augmented by surveys of selected job categories and focus group meetings with selected job categories as well as an institution-wide survey.

Job categories selected for either a survey, focus group, or both, were project scientists (PS), associate scientists (AS), engineers (software, network, mechanical, electrical, facilities, and system administrators) and administrators (administrative assistants and administrators). The career path of scientists and research engineers, including the ARG process and tenure, was considered by Subcommittee IV.

For PS, both a survey and a focus group meeting were conducted. This was the first group examined and therefore it was not known which approach would provide more information, so both were tried. PS represent the fastest growing job category at NCAR (Fig. 1) and a job category with considerable breadth of function. Associate scientists represent a large group (nearly 100) that has a long history at NCAR, but one that has undergone some notable changes. First, many fewer associate scientists are base funded than in the past. Second, very few entry-level AS are hired (there are fewer than three AS-I FTEs currently). Third, the model of an associate scientist tied to a particular scientist is rapidly vanishing.

The engineering group (of which most are software engineers or systems administrators) represented the largest group and one that has grown steadily over the past decade. Because of its size, it was important to examine the career tracks of employees in this group. Finally, the administrator group was examined because it was a large group (about 90, including administrative assistants and administrators), but it has not grown in 12 years despite the increase of staff overall. This fact implied a change in workload or job duties over time.
We could not examine all job categories. As mentioned, scientists were not examined because the scientist career path was being examined by Subcommittee IV. However, some issues we examined do pertain to scientists, such as management responsibilities and the inequities introduced by the varied requirements of external funding. In all, the job categories we examined cover nearly 60% of NCAR. We also included UCP employees in surveys and focus groups.

II. OVERARCHING QUESTIONS AND LINK TO THE NCAR STRATEGIC PLAN

The first overarching question about the balance of staff appears to have two answers depending on the source of funding, and this underscores the importance of external funding in shaping the fabric of NCAR. Although accurate statistics are not available, there was a consensus that base-funded support positions have declined within the past ten years and have been increasingly tied to large projects instead of individual scientists. The number of AS has increased slightly, but there has been a perceived shift toward external funding. Project scientists are funded mainly from external sources and tied to specific projects. They are not support scientists in general, but they often contribute to large projects. If “support” is defined as contributing either to individual scientists or to large projects (with one person often contributing to more than one), then it is clear that the support for science has increased, and much of the increase appears to be externally funded.

The science goals in the NCAR Strategic Plan emphasize large projects, both in the imperatives and frontiers. Although the research of individuals will continue to contribute fundamentally to the goals of NCAR, it is likely that in five or ten years NCAR will have most of its scientific staff contributing a significant fraction of their time to large projects. It has been repeatedly emphasized that NCAR should be primarily engaged in large projects that university researchers cannot realistically do. In this scenario, it is likely that the importance of project scientists, associate scientists, and engineers will increase. Furthermore, the need for effective project management will also increase. This could have one of three consequences: increasing the managerial demands on scientists, increasing the role of project scientists in management, or expanding the job class of project managers. In the first two cases, there will be increased emphasis on individuals who can do both management and cutting-edge research. If the job class of project manager is expanded, the job matrix needs to be publicized, and NCAR should proactively seek highly skilled project managers for large projects.

At present, the tie of NCAR to the university faculty model tends to downplay the role of effective project management. NCAR tends to be reactive rather than proactive about ensuring that people with project management skills are available. Among scientists and perhaps project scientists as well, NCAR tends to measure productivity in publications, citations and, to varying degrees, success in obtaining external funding and de-emphasizes project management skills. This is clearly aligned with the university value system. As large projects become more important, the university model will grow less relevant.

An important question to answer is to what extent NCAR will value management skill as part of a scientist appointment, and to what extent NCAR will proactively seek individuals who exhibit research excellence and managerial promise. A second question is whether the evaluation process for NCAR scientists will evolve as large projects become increasingly important. Will NCAR continue to adopt the university model, will NCAR move more toward a NASA model...
(where project managers have considerable power), or will we move to a position somewhere in between? NCAR is currently at a crossroads, with non-NSF funding prominent and ESSL being reorganized. Non-NSF funding is creating tension within the staff (discussed below) and the scientific reorganization provides an opportunity to reduce this tension and position the organization for the next decade of research. As part of this repositioning, we recommend that NCAR proactively attract people with skills to contribute to and lead large projects, recognize the various manifestations of leadership skills in evaluation and promotion or reclassification, and state explicitly what those valued skills are.

The NCAR Strategic Plan emphasizes “predictive science and modeling.” A crucial question is whether NCAR has the balance of staff to maintain the development, use, and community support of its models. Areas of possible disciplinary understaffing, either because of too few current staff or potential retirements in the next five to ten years are (a) base-funded expertise in developing new Earth-system models; and (b) base-funded data assimilation, combining observations and models. Currently much of the data assimilation effort is funded through external grants. The available pool of talent for data assimilation is also small because few universities provide this training. However, the trend appears positive (for example, Andersen et al., 2009, BAMS). NCAR, through effective partnerships with universities could help provide the necessary knowledge base for this important area.

The advent of larger, more complex projects will necessitate the continued hiring of higher-level engineers, project scientists, and associate scientists in the coming years. The advancement of community facilities will require further increases in staff, in a variety of technical job categories, to support those facilities for the broad atmospheric science community.

Below is a series of more specific recommendations that have been derived from the composite of external and internal scan information referred to above.

1. Postdoctoral program and visitors
By far, the most visitors on base funds reside in the postdoctoral program. This represents a significant shift from the late 1990s when the number of base-fund-salaried visitors exceeded 30 (37 in 1997). Currently NCAR has about 30 postdocs per year. This number has been roughly constant over the past 12 years despite a 20% increase in the number of NCAR staff. NCAR-wide, the number of visitors (including postdocs) on base funds has decreased from about 10% of the workforce to about 4%. We would argue that this trend is unfavorable for two reasons. First, NCAR is a national center, and as such it should attract visitors who stay for relatively long periods (e.g. at least two years) in addition to facilitating short-term visits. Long-term visits are especially beneficial for early-career scientists (postdocs) prior to beginning their careers in more permanent jobs because it allows these scientists to collaborate, explore new research areas, and publish papers. Second, the turnover rate at NCAR is extremely low (1-2% per year). Increasing the number of visitors is a natural way to increase the turnover rate. A potential problem related to low turnover rates is an aging workforce. This issue becomes more acute in bad budget times that tend to limit hiring of early-career employees.

We note that the Advanced Study Program (ASP) selects only 10% of applicants or fewer. We often turn away highly qualified people. NCAR could probably choose the top 15% each year and not dilute the talent pool. This way we could make offers to nearly all the top candidates.
Post-docs benefit from greater collaboration potential, development of incipient colleague relationships, etc. Since so many staff members are hired through post-docs (for example, about 1/3 of Scientists I, II, and III), NCAR would benefit by increasing the number of postdocs and thus providing the organization with a broader pool of people who have already undergone extensive screening and with whom we are familiar. Increasing the number of postdocs would also counter the trend of an aging workforce and increase the turnover rate.

**Recommendation:**
Expand the total number of postdocs to 40 at any one time by augmenting the ASP program.

**Level of importance:** high

**Degree of difficulty:** low (apart from tradeoffs that have to be made to find the money)

**Cost of implementation:** At about $120K per postdoc per year, it would require a nearly $1.2M budget increase to support an additional ten postdocs fully on base.

There is apparent confusion about the freedom of non-ASP postdoctoral positions. Technically there are no constraints on what postdoctoral fellows do, but outside of ASP they are often hired for specific projects. Perhaps postgraduate scientists could be more widely utilized to support soft-money programs. To the extent that external funding can augment large, base-funded programs, postgraduate scientists would offer a less expensive option for contributing to specific programs than increasing the number of ASP postdocs. Further, with fully term appointments, there would be turnover consistent with changes in projects. However, there is some confusion about distinction between postgraduate scientist and an entry level project scientist on a term appointment. This should be clarified.

**Recommendation:**
Encourage the hire of postgraduate scientists instead of postdocs when the goal is work on a specific project. Hire postdoctoral fellows when the intended work is on a particular topic without explicit ties to a particular project. Postgraduate scientists would effectively augment the number of postdocs in a more affordable way (from a base-funding perspective).

**Level of importance:** medium-high

**Degree of difficulty:** low

**Cost:** essentially zero to base

Finally, we note that an alternative approach would be to increase the number of long-term visitors on base funds, where these visitors could be junior- or senior-level people. In particular areas where there is an acute need for expertise, this is a possible strategy. However, in many cases, hiring a project scientist may be the best way to meet such a need. Another motivation for enhancing long-term visitor support would be to attract internationally renowned scientists who could catalyze an area of research through their visit. This is an important consideration for use of base funds.
2. Evaluation of employees in job categories with diverse functions

Focus group meetings and surveys indicated that the evaluation and compensation process may not be adequate for job categories whose functions are diverse. Examples of how job diversity affects different job classes appear below:

- Project scientists may be doing primarily management or research, yet PSs are evaluated with the same form used for scientists. There is a tendency to project the same criteria for performance onto both categories, which typically means publications carry more weight than management. Yet for many project scientists, publications are difficult to produce because of project demands (62% of PSs responding to the survey indicated they did not have adequate time to publish). Some enhancement of publication opportunity is discussed in Item 3, below.

- Administrators have seen their job functions shift to the point where new matrices have been developed (not yet released). The changes in job duties have occurred in response to the increased number of overall staff without commensurate increase in administrative staff, plus new technologies (requiring computer and Web skills).

- Associate scientists have taken on responsibility for obtaining external funding and project leadership roles in addition to traditional science support.

- Engineers, particularly software engineers, have seen a growth in programming languages, distributed computing, and management responsibility.

Some of the above changes are expected in a technical field. Others, particularly securing external funding and increasing management roles, present challenges for fairly evaluating and compensating employees.

**Recommendation:**
More clearly define how highly diverse job functions should be evaluated within a given job category, especially for project scientists. The relative importance of a particular job should be indicated by the PDQ of each employee, but it is not clear whether the PDQs are consulted during the evaluation of project scientists. It is also possible that over time, the PDQ has become a less accurate description of how the employee allocates time. It is also possible that this issue affects other job classes, but project scientists seem to have a particularly large diversity of job tasks.

**Priority:** medium-high

**Difficulty:** medium

**Cost:** some additional effort for HR and supervisors; hard to estimate cost.
3. Promotion and reclassification

At present, there is considerable confusion about expectations for advancement to higher levels in non-ladder-track jobs (longevity at a given level is not a criterion for advancement per se). Most employees feel they should have a career path but it is not clear that they do. Furthermore the process of promotion or reclassification appears highly variable across units. There is a need for improved communication of the reclassification process outside of the ladder tracks at the time of hire and during performance evaluations. This includes clarification of who and what factors initiate the process.

Furthermore, focus group meetings have suggested that some employees who wish to advance feel frustrated that the duties of the current job make it very hard to advance. Specific examples: (a) project scientists are required to develop a substantial body of refereed publications to advance to Level III, but publications are not required for Levels I and II. In many cases, based on the focus group discussion and survey results, project scientists would like to produce publications, but their current tasks allow little or no time for this; (b) many large models are coded in Fortran, but software engineers often have no training in this language and there is essentially no call for Fortran experience in the software engineering job market; (c) administrators have noted that the gradual increase of job requirements makes it more challenging to demonstrate they are functioning at a higher level.

A career track is not uniformly realizable for members of a given job category because access to higher-level positions is tied to specific job duties. In the engineer survey, about 20% of respondents felt this way. Many PS respondents indicate that even 15% of their time would be valuable for pursuing publications. Typically these publications would result directly from their work on projects, and it would help NCAR to have externally-funded work published.

Recommendations:

a. Address to the extent possible inconsistencies between career advancement and duties of a current job while recognizing that not everyone wishes to advance or has the skills to do so.

For those who express a desire to advance to a higher job category, supervisors or project managers should be encouraged to create flexibility that allows the employee to demonstrate skills commensurate with the higher level. Subcommittee V recommended that a fraction of each FTE be set aside for professional development. With a similar intent, we recommend that a pool of funds be created for this purpose. It would be a competed pool of money whose amount and administration are to be determined. It would be used to cover time for writing a paper, classes, or sabbaticals for those on external funds. A suggestion is roughly $100K per lab per year (in the post-ESSL reorganizational structure). By making this a competitive process, one could select the opportunities most likely to be helpful to NCAR as well as an individual.

In the case of software engineers and Fortran, the career path should be considered at the time of hire or as part of decisions about which projects SEs will be working on and with what tools. For newly hired associate scientists or project scientists, adopting standard software engineering practices, might be a better fit than asking software engineers to work on large Fortran codes. These individuals are more likely to remain in the atmospheric sciences for their career, where large models written in Fortran will continue to be used for some time. More generally, associate
scientists and project scientists would benefit from adopting more standard software engineering practices.

b. Job matrices may need updating. For example, the PS matrix does not emphasize publications until Level III. By adding something about publications at Level II it could make it easier to satisfy the higher-level requirement, provided (a) is also enacted. The new job matrix for the administrator group should be implemented as soon as possible.

c. Improve communication of the process for reclassification at hiring (generally speaking) and at performance evaluation time (on a personal basis).

d. Better define the equivalence of a PhD. Associate scientists who want to move to PS but do not have a PhD are unclear about what constitutes PhD equivalence. The Dickson (2002) study of the AS and PS categories recommended better defining the equivalence of the PhD and there is still a need to do this.

**Priority:**
a. high  
b. medium  
c. high  
d. medium

**Level of Difficulty:**
a. medium  
b. low  
c. low  
d. low-medium

**Cost:**
a. $500K - $1M per year  
b. $50K in HR personnel cost  
c. nearly zero  
d. probably a small cost, hard to quantify

4. **Base funding versus external funding**

a. Funding source affects job function, career advancement, and university interaction. External funding may be described as a great “unequalizer.” Base funded scientists usually enjoy more freedom to pursue research, publish papers, attend meetings, serve on university committees, go on sabbaticals, etc. Recommendation 3a may help alleviate some of the career advancement concerns faced by those funded externally.

b. Nearly all scientists desire assistance in research from support staff. Few of the externally scanned institutes provide such support as a matter of course. The notion of a support person linked to a particular scientist is vanishing and being replaced by more project-linked, distributed support. Much of this support is externally funded. However, an increased emphasis on large projects in the future will likely require additional scientific and technical support, or a more
efficient arrangement of the support that exists. Furthermore, the support for publications and travel is highly variable across units.

**Recommendation:**
Better define the expectations and process for obtaining research assistance from science or engineering support staff and expectations for publication and travel support. Consider models such as a pool of technical expertise to which scientists or project scientists can apply. These would be partly base-funded, perhaps from a redistribution of existing resources, and thus be close to budget neutral. For travel and publication support, consider an institute pool of resources that can be competed if unit funds are insufficient.

c. Currently there is no substantive constraint on the type of external funding that is sought. There is a perceived danger that NCAR is becoming more of a “job shop” as pressure to acquire additional funds rises.

**Recommendation:**
More effort should be made to link external funding with strategic priorities. This could reduce some of the unevenness associated with external funding across the institute by (i) making less distinction between funding sources; (ii) making shared science support for research feasible (shared between base and external); (iii) making more efficient use of overall talent to accomplish broad research objectives; (iv) reducing complaints of direct competition with universities by focusing on larger projects. The NCAR strategic objectives emphasize large projects.

**Importance:**
b. high
c. high

**Difficulty:**
b. medium
c. high

**Cost:**
b. definition costs little: pool of support people would have cost associated with its oversight
c. unknown; leveraging external and base funds would be cost saving; but saying ‘no’ to external funds has a definite cost in terms of staffing (non-base).
5. Relationships with universities and other agencies

a. NCAR employees seldom take sabbaticals. They should be encouraged, but it is not clear that a drastic increase is needed or even wanted by the university community. Sabbaticals at non-university institutes are even less common but could be more beneficial to NCAR in the long run, establishing working relationships on large collaborative projects. The external scan data suggest that few sabbaticals are taken by staff at non-university facilities. There is also the difficulty of taking a sabbatical when funded by soft money or managing ongoing projects with high demands. We recommend that sabbaticals continue to be encouraged but not emphasized more than they have been in the recent past.

b. It is recommended that “safety nets” (extended-time contingencies for returning to NCAR for people accepting jobs elsewhere) be drastically reduced or eliminated. People seldom return and the situation creates budget pressure and lack of flexibility for new hires.

Importance:
  a. low-medium
  b. high

Difficulty:
  a. low
  b. low

Cost:
  a. no additional cost
  b. some cost saving if any salary is going to people working elsewhere. Otherwise, benefit is in budget flexibility.

6. Job categories

More than 100 jobs have single or no current incumbents. A concern is that it may be difficult to properly evaluate those in single incumbent positions. In some cases there may be enough overlap of these positions with other job classes to consider combining them. For instance, many single incumbents are in the management class. Perhaps some of these could be considered project managers.

Recommendation:
Reduce the number of single-incumbent positions by evaluating which positions are either obsolete or can be combined into larger job categories.

Priority: low-medium

Difficulty: low

Cost: low
Figure 1. Project Scientists versus time (the Project Scientist job class began in 1997).
Subcommittee IV—Scientific and Engineering Appointments

September 8, 2009

I. INTRODUCTION AND OVERVIEW

The development of a Workforce Management Plan (WMP) is part of the overall strategic planning process at NCAR. It will lay the foundation to retain and continue to attract the high quality, motivated and well-supported staff necessary for NCAR to realize its evolving scientific goals and grow as a thriving national center. The subcommittee on Scientific and Engineering Appointments (WMP Subcommittee IV) was charged with identifying and addressing workforce issues pertaining to ladder-track scientific and research engineering appointments at NCAR.

Since January 2009 the subcommittee has met nine times. In addition, sub-groups of subcommittee members have gathered to discuss specific issues and develop associated recommendations. The entire subcommittee also often communicated via email.

To gather broad input from staff, the subcommittee organized a one-day retreat open to all NCAR Scientist Assembly (NSA) members. Approximately 90 people attended the retreat. Eight different working groups discussed issues and summarized thoughts in written reports. Comments on the report were solicited from NSA members, NCAR management, the WMP Executive Committee, and the personnel committee of the UCAR Board of Trustees (UCAR BOT). This final version reflects much of the input received.

This process was focused in substantive terms on three broad areas: (1) overall organizational models for scientific appointments; (2) job security and academic freedom; and (3) the criteria and process associated with the NCAR appointment system. The remainder of this report is organized around these areas. We conclude that the basic NCAR appointment system is appropriate to its mission, and there is no need for radical change. However, we do make a number of significant recommendations that would both clarify and modify parts of the system.

One theme in these recommendations revolves around clarifying the NCAR policy on tenure, in order to move from what is currently perceived as an implicit or de facto tenure system to one that is clearly described and consistently applied. In this sense, the recommendations would move NCAR somewhat closer to a university model. However, the recommendation on tenure policy does not imply that tenured NCAR Scientists and Research Engineers would have a guaranteed lifetime position with unfettered freedom to pursue any topic of interest. Rather, we emphasize that such a policy would also include important responsibilities of tenured Scientists and Research Engineers. To that end, the recommendation for a formal tenure policy must be seen as packaged with other recommendations for a strengthened post-Appointment Review

12 See [http://www.cgd.ucar.edu/cas/jhurrell/downloads/NSA_Retreat/](http://www.cgd.ucar.edu/cas/jhurrell/downloads/NSA_Retreat/). Other supporting documents used at the NSA retreat are available as well.
Group (ARG) review process to guard against abuse of job security, and a clear delineation of position responsibilities for mission-oriented research and community service.

A second theme in the following recommendations is the intent to retain and strengthen the roles of NCAR management units (laboratories and divisions) in the scientific appointments process. Toward that end, we suggest transfer of the post-ARG review and some aspects of the ARG review to those units, reinforcing the expectation that quality control in scientific and research engineering appointments is best made at this level, and that these units must be held accountable for ensuring this quality. We also recommend that base budgets of the management units should be adequate to cover the salaries of the ladder-track scientists in those units if so required, emphasizing it is at that management level that restraint is needed to avoid budget over-commitment.

II. ORGANIZATIONAL MODELS FOR SCIENTIFIC APPOINTMENTS

The current NCAR system for scientific appointments could be described as a mix between a pure university model and a model for an independent research institute. The NCAR system includes positions similar to tenure-track university faculty, as well as a substantial number of non-tenure track research positions. Visitors play an important role, but make up a relatively small fraction of staff. There are no formal limits on numbers of positions of particular types.

The WMP Subcommittee IV developed a set of alternate models of how NCAR scientific appointments might be structured. These alternate models were discussed within the subcommittee and at the NSA retreat. Models included:

1. Extreme-change examples:
   - A staff primarily based on visitors, with only a small or rotating “permanent” staff, closer to the original “Blue Book” concept or to the present European Centre for Medium-Range Weather Forecasting (ECMWF) structure;
   - A structure like that of the Lawrence Berkeley Laboratory, strongly based on teams conducting pioneering science and enabled/authorized to pursue lines of research of their own choice;
   - A strongly entrepreneurial center, perhaps following the example of RAL.

2. University models:
   - A stringent university system modeled, for example, after Stanford, with perhaps 50% or lower retention from entry to tenure;
   - A mid-to-upper-tier university system, where the retention rate might exceed 90%;
   - Innovative university models, providing extra pay for untenured positions, part-time tenure track, automatic time extension for parents, etc.;
   - Other models regarding promotion review structure, including who chooses the members of promotion and tenure committees, independence or interdependence of administrative versus faculty recommendations, etc.

3. Models that feature:
   - Higher ratios of support staff to tenure-track staff and more autonomy for senior faculty members;
   - Limits on the number of positions or promotions (e.g., Yale);
• Higher reliance on non-tenured term appointments to meet components of the primary mission (a trend at many universities).

Each model was considered in terms of how it might affect the ability of NCAR to meet strategic goals and, in particular, how it might affect the following set of important attributes:

• Reputation and quality
• Collegiality and work environment
• Links to the community
• Academic freedom (both in terms of freedom from dismissal for unpopular ideas or research areas, and freedom to devote some fraction of time toward basic, innovative research in areas favored by the scientist)
• Job security (related to academic freedom)
• Ability to address institutional goals and flexibility
• Fairness
• Overall attractiveness of positions as viewed by top-level scientists

The subcommittee's process, pursued at the NSA retreat, was to consider these attributes in terms of the current system at NCAR, and how they would be enhanced or degraded by a change to other models or parts of other models.

The overwhelming sense was that none of the other models considered has obvious advantages over the current NCAR system. The historical scientist appointment model at NCAR has been extremely successful in allowing the institution to recruit top scientists, achieve institutional scientific objectives, and maintain strong connections to the academic community.

There was considerable concern expressed at the NSA retreat and within the subcommittee, however, over: (1) the absence of a clear definition of the present system; and (2) the status and security of those in the Scientist III position. Several recommendations contained in the remainder of this report, in particular regarding the clarification of the NCAR policy on tenure, are aimed at addressing these concerns.
III. JOB SECURITY AND ACADEMIC FREEDOM

3.1 Tenured Appointments

Policy: [http://www.fin.ucar.edu/polpro/section6/6-5.html](http://www.fin.ucar.edu/polpro/section6/6-5.html)

Scientific and Research Engineer positions at NCAR are loosely modeled after university faculty positions, with Scientist I and II positions corresponding in time to Assistant Professor positions, Scientist III to Associate Professor, and Senior Scientist to Full Professor. However, those corresponding faculty positions almost all benefit from extensive and explicit definitions of the associated tenure systems. In contrast, NCAR does not have a tenure system except for what has developed from common practice and understanding over decades. The result has been to regard Scientist III and IV positions as “tenure-like”. Scientists (and now Research Engineers) in those positions undergo a thorough review at the time of promotion, with important weight given to external opinions in ways that parallel university systems where this review leads to tenure.

There are strong arguments for a formal tenure policy at NCAR:

- It would clarify expectations regarding job security in the tenured positions (Scientist and Research Engineer III and IV).

- It would be consistent with (and provide justification for) other accepted aspects of the NCAR scientific appointment policies, such as the “up-or-out” aspect of promotion to Scientist III, term limits on Scientist I/II appointments, and the necessity of post-ARG review.

- It would increase overall attractiveness of NCAR scientific appointments by offering tenure that is similar to that in university faculty positions.

- It should, over time, increase the quality of the ladder-track scientific staff, both through attractiveness and through an associated increase in the value the institution places on the investment made in tenured positions.

- It would place the institution on record as supporting academic freedom.

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13 Note: Changes to the NCAR Scientific Appointments Policy 6-5 were approved by NSF on June 12, 2009. In particular, the revised policy incorporates the following changes:

- New Title – NCAR Scientific and Research Engineering Appointments Policy 6-5
- Addition of the Research Engineer position to the appointments system.
- Change from “authorization” to “approval” by the UCAR Board of Trustees of senior level appointments.
- Addition of the following text: “The involuntary termination of a level I, II or III Scientist or research engineer requires approval by the NCAR Director. The involuntary termination of a senior level Scientist or Research Engineer requires approval of the NCAR Director, the UCAR President and the UCAR Board of Trustees.”
• It would emphasize that scientists have special responsibilities that include contributing to the mission of NCAR and to the thematic projects that NCAR undertakes.

• It would bring NCAR appointments more in line with university faculty appointments, potentially making interchanges between NCAR and faculty appointments easier and more parallel.

Potential negative impacts of a tenure policy were also considered by the subcommittee. They include:

• Resentment by non-ladder track staff over the enhanced level of job security for tenured Scientists and Research Engineers at NCAR;

• Resentment from parts of the university community who might believe that ladder-track scientific and research engineering staff at NCAR already have sufficient job security;

• Loss of flexibility to change programmatic direction or address fiscal difficulties of the institution;

• Loss of flexibility of management units (laboratories and divisions) to hire new Scientists and Research Engineers because of the need to assure sufficient base funding to support them;

• Reduction of the fraction of NCAR scientific staff on the Scientist/Research Engineer tracks, perhaps leading to more research carried out by Project Scientists and visitors;

• Decrease in collegiality resulting from enhanced competition among scientists associated with an increase in the threshold for or number of available appointments; and

• The possibility that securing tenure might lead to a tendency for some to neglect the programmatic needs of NCAR or decrease the level of their scientific effort.

Overall, the committee felt these potential negatives are strongly outweighed by the positive benefits of a formal tenure policy. Some of the potential negative impacts, for instance, are either not likely (e.g., a decrease in collegiality) or they would be effectively mitigated by some of the additional recommendations made in this report. For instance, a decrease in scientific effort or neglect of programmatic needs would be addressed by an effective post-ARG review process, independent evaluations and salary adjustments, and retention of dismissal for cause or budget stringencies.

Issues:

• In the NCAR appointment system, Scientist and Research Engineer III/IV positions are thought of as “tenured” appointments. However, there is no clear statement on what “tenure” at NCAR means in terms of an individual’s rights, responsibilities, and job security. Moreover, the term does not appear in policy statements.
• Although both Senior Scientist and Scientist III positions are thought of as “tenured” appointments, they are not given the same protections with regard to termination.

• Prestige and job security of the Scientist III position is inadequate. In past experience, this position was sometimes the most vulnerable to involuntary termination among the scientist positions.

Recommendations:
• More specific clarification should be provided for the meaning of “tenured” appointments at NCAR. A draft NCAR scientist tenure policy is in the Appendix of this report. It includes procedures for the involuntary termination of a tenured scientist for reasons of incompetence, neglect of duty, or misconduct, or because of financial exigency or reduction in program.

• NCAR should take steps to increase the prestige and job security of the Scientist III position. Several pertinent issues are discussed in the Appendix, and many of the other recommendations in this report are intended to address this need. Key aspects of the draft tenure system in the Appendix that contribute are:
  o For consistency with university tenure systems, authorization\(^\text{14}\) by the UCAR Board of Trustees should be required for appointments to the Scientist and Research Engineer III positions.
  o Adoption of the tenure system specified in the Appendix and other recommendations in this report would contribute to this goal by, over time, strengthening the standards for promotion to Scientist III, and perhaps also Scientist IV at the division or laboratory level.

3.2 Balance between fundamental scientific research and community service

Issues:
• NCAR Scientists and Research Engineers often struggle with allocating their efforts between the two key missions of basic scientific research and community service (internal, national and international). NCAR scientists need to contribute to both of these. There is concern, however, that the relative roles of each (at least for some staff) are:

\(^{14}\) The subcommittee recommends the NCAR Scientific Appointments Policy 6-5 state that senior level appointments require “authorization” rather than “approval” by the UCAR Board of Trustees (see the previous footnote).
o Not well balanced, possibly due to the loss of support staff with recent budget pressures.

o Not well communicated, especially to incoming and early career scientists. This includes both the expectations of how much time should be spent on basic science versus service and the level and type of support that is available at NCAR for community services.

o Not appropriately weighed in the ARG promotion process or the hiring process.

Recommendations:

- Quantify expectations for each ladder-track position in terms of percentage of time devoted to independent research, mission-oriented research, and both internal and external service. Regularly update these percentages as part of the annual review process.

- Better inform new and prospective employees about the dual roles of NCAR scientists and research engineers, expectations of their involvement in basic research and community service projects, and the level and type of support that is available for community services.

- Clarify how the promotion process weighs scientific contributions to basic research and community service, to ensure that all expected activities are considered appropriately in scientific promotions.

3.3 Base support and expectations of external funding

Issues:

- A substantial fraction of Scientist and Research Engineer positions are supported by external funds. These positions would be at risk if those funds were no longer available.

- Expectations for obtaining external funding vary widely across NCAR and are often unclear to early-career scientists. Expectations for substantial fund raising can be problematic, especially to early career scientists, for several reasons:
  
o The relevance of fund raising to the promotion process is unclear.
  
o Given the growing dependence of programs on external funds in order to maintain support staff, hardware/software, and travel, there may be pressure to generate funding even if it is not directly related to priority scientific goals.
  
o NCAR scientists have inherent limitations on their fund raising potential, including limits on funding available from NSF, discouragement from competing with universities, ineligibility for funding from private foundations with overhead limits, the general requirement to include funding for university co-investigators in proposals (which reduces the funding coming to the NCAR PI), and perceptions by some funders that NCAR staff do not need financial support. The opportunities vary greatly with research area, so pressure to obtain external funding can have undesirable influence on research directions of scientists.
Recommendations:

- Many groups at NCAR are presently deficient in support for scientists, and scientists are inefficient in their work as a result. Those groups need to take steps to address this imbalance, even if this requires hiring fewer Scientists and Research Engineers. This is a critical aspect of the work environment that is making NCAR less attractive to Scientists and Research Engineers, who see greater opportunities to work efficiently in university environments where they have greater control over support.

- NCAR units should make a commitment to cover the salary of ladder track positions from base funds if so required. This inherently limits the number of ladder-track positions a laboratory or division can support. While external funds can temporarily provide salary relief, units should manage budgets so that ladder track positions can be covered when these funds are no longer available.
  
  o External funding should aim to support NCAR’s strategic goals.

- External funding expectations need to be defined, clearly communicated, and incorporated into criteria for review and promotion.
  
  o Communication of expectations is especially important for new scientists and should be in writing.
  
  o Review and promotion criteria regarding fund raising need not be uniformly applied across NCAR, since different units face different conditions regarding external funding. However, successful fund raising should be explicitly recognized as evidence of scientific excellence and productivity.

- NCAR/UCAR management should improve communication with funders and the university community about the funding needs of NCAR scientists. For example, external funding supports many activities that directly support the science done by university colleagues.

IV. CRITERIA, PROCESS AND POLICY FOR SCIENTIFIC AND RESEARCH ENGINEERING APPOINTMENTS

4.1 Appointment criteria and expectations for promotion

ARG procedures: [http://www.ncar.ucar.edu/central/arg](http://www.ncar.ucar.edu/central/arg)

Current criteria: [http://www.ncar.ucar.edu/central/arg/docs/criteria.pdf](http://www.ncar.ucar.edu/central/arg/docs/criteria.pdf)

Issues:

- Various existing documents specify criteria for hiring, evaluating and promoting scientists and research engineers. They share common goals, but each document has different emphases on the importance of and balance between service and science, leadership (scientific and organizational), innovation and discovery, impact, and relevance to NCAR. The appointment criteria have not been reviewed and approved by current management or current NCAR Senior Scientists. It is not clear, therefore, that the criteria reflect the
collective judgment of the current institution or provide good guidance regarding requirements for promotion. It is also not clear that a single set of criteria can adequately accommodate the highly diverse backgrounds of both NCAR scientists and research engineers.

- Some standardization of criteria is desirable. It is an opportunity for communicating institutional values. Similar templates can guide evaluations for hiring, annual review, promotion (ARG), and post-ARG review. A more standardized set of criteria can also facilitate comparisons across institutional units. Objective metrics (publications, citations, web hits, etc.) are important and should be used across the board, but they must also be understood (e.g., publication rates and citation counts can differ greatly across disciplines).

- While a summary list of criteria for promotion is provided, practical advice for fulfilling those criteria is not readily available. Much of the advice, available from NCAR websites, is from panel discussions and “Staff Notes” articles in which individuals describe their understanding of the expectations and process. It is difficult for early-career scientists to assess how reliable and generally accepted these statements are.

- The primary decisions for promotion are made at the division/program level, but the procedures and criteria are often obscure to the Scientists and Research Engineers being considered. There are considerable differences among divisions/programs in how promotions are handled. The criteria are not always in line with the criteria used in annual performance appraisals.

- The current guidelines specify that the ARG meets in January and again in April or May. It is therefore not clear how cases can be brought to the attention of the ARG outside of this normal cycle. Not having such flexibility, and not being able to “fast-track” certain cases, might possibly put NCAR at a competitive disadvantage in the recruitment for Scientist and Research Engineer III/IV positions.

Recommendations:

- The current ARG criteria are a good starting point but some revision is desirable. The ARG recognizes a single over-arching criterion - scientific excellence - as demonstrated by substantial measures of: (1) productivity; (2) leadership; (3) national and international reputation; (4) contribution to NCAR programs; (5) breadth; (6) scientific and technical service in the NCAR context; (7) broad community service; and (8) awards. We recommend more explicit recognition of some other characteristics including creativity, innovation, and scientific insight. We also recommend some consolidation of the programmatic criteria (items 4, 6, and 7) in order to make the criteria easier to understand, including for external referees (e.g., they often struggle with the meaning of item 6).

- A uniform and standardized set of criteria should be developed by the ARG and reviewed and approved by current NCAR management and Senior Scientists. These criteria should be applied for hiring, evaluating, and promoting NCAR scientists and research engineers.
• The same broad criteria should apply to both Scientist and Research Engineer ladders, although each specific case may present a different balance of various metrics.

• Scientists at all levels should have easy access to clear descriptions of the promotion processes, including those within divisions and laboratories, and should receive ongoing advice regarding their progress toward meeting the qualifications for promotion. Annual performance review criteria should be closely aligned with the criteria for promotion, thereby facilitating better assessment of progress towards promotion.

• There should be uniform promotion/review criteria across laboratories and divisions, although the relative weighting of the criteria may be different, depending on the mission of the division/program and the job requirements of the scientist and research engineer.

• More of the responsibility for promotion review should be assigned to the nominating laboratory or division, because it is expected that the primary quality control will be imposed at that level. Laboratories and divisions should solicit an initial set of letters of reference for their own deliberations, assemble and review nomination packages, reach their own recommendation on whether or not the case should proceed to the ARG, and summarize the process, deliberations and recommendation in writing along with their assessment of the strengths and weaknesses of the case.

• The laboratory or division has full responsibility for deciding which cases will be taken forward to the ARG. Failure of a nomination at the ARG level should trigger consideration by the NCAR Director of why quality control failed at the level of the nominating entity. The nomination packages, all solicited letters and the written summary prepared by the laboratory or division should be forwarded without change to the ARG, which will remain authorized to solicit additional letters of reference, if necessary. ARG review will thus continue to maintain standards for the institution, but will also assess how well the standards are being maintained at the laboratory and divisional levels.

• A systematic and documented review at the time of promotion from Scientist I to Scientist II should be instituted by the home laboratory or division, providing more formal guidance to scientists and research engineers regarding their career development.

• The ARG procedures should provide for enough flexibility to consider cases out of the normal ARG cycle.

4.2 Entering and exiting the ladder track: defining “up or out”

Issues:
• The “up-or-out” aspect of promotions on the NCAR Scientist and Research Engineer Ladder is part of an overall scientific appointments policy that is intended to be similar to university faculty appointments. However, Scientist and Research Engineer level III/IV positions do not have the tenure protections given to university faculty appointments.
- The policy is ambiguous as to whether or not “out” means out of the organization or out of the Ladder.

- The policy does not address the conditions under which candidates not currently on the ladder may enter the track.

**Recommendations:**
- There are a number of other job categories at NCAR in which a scientist’s contributions could be of great benefit to the organization, so the “up-or-out” policy should apply only to continued appointment on the Scientist and Research Engineer Ladder and not explicitly to continued employment at NCAR. Consequently, those on the Ladder who are unsuccessful in being promoted to II and III levels should be given fair consideration for positions in other job categories that become available and are openly advertised and competed.

- For consistency with the “up-or-out” policy, if a candidate for promotion to Scientist/Research Engineer III is unsuccessful in the ARG, that individual should not be considered for future appointments or promotions on the Scientist/Research Engineer ladders.

- Ladder-track positions have a special nature (person-based and greater risk), so entering that ladder should require an open process for advertising and filling the position. Thus, an individual in a job category outside the Scientist or Research Engineer Ladder must first successfully be selected in an open competition\(^{15}\) for an appointment before moving to the Ladder (or seeking ARG approval for positions at the III and IV levels.) If unsuccessful in the selection process, the individual can then continue in his or her current position, provided that position is retained. (An exception to this requirement for an open competition should be made for someone in a management job category who seeks a scientist appointment while retaining the management position.)

**4.3 Defining the clock, and stopping or slowing the clock**

**Policy:** [http://www.fin.ucar.edu/polpro/section6/6-5.html](http://www.fin.ucar.edu/polpro/section6/6-5.html)

The NCAR Scientific Appointments Policy currently recognizes two mechanisms (italicized below) for extending the length of appointments: (1) in “certain cases the NCAR Associate Director may request a single extension of up to three years”; and (2) in “certain circumstances, it may be appropriate to ‘stop or slow the clock’ in the appointments sequence. The length of the interruption is determined by individual circumstances, and NCAR agrees to extend the time allowed before evaluation for promotion during that period.”

Although not specified in the Policy, practice has been that the first mechanism is used in cases where the nature of the work is lengthy (e.g., large model or instrument development) and the 3-year extension could make a major difference in the application, dissemination, and publications

\(^{15}\) Exceptions are possible by obtaining a waiver as described in current UCAR Policy 6-3.6).
of the work. The second mechanism is used in situations not directly related to the nature of the work at NCAR, but rather to family or other reasons (e.g., parenthood, illness, etc.) Hereafter, for convenience and consistency with historical usage, we refer to the first mechanism as an extension and to the second mechanism as stopping/slowing the clock.

Issues:

- The definition of the promotion clock is not clear. In particular, how the timing for promotions is currently determined (e.g. whether it depends on hire date, ARG submission date, etc.) is not clear and may vary across the institution.
- While the flexibility implicit in the extension and the stopping/slowing the clock mechanisms is useful and should be retained, the policy is too vague. There are no specific guidelines or clear definition of the circumstances that warrant either an extension or stopping/slowing of the clock, and for the latter the policy does not specify who is authorized to grant this extension. Some staff members are also concerned that a stigma may exist in cases where an extension or stopping/slowing of the clock is requested or given.
- The policy does not address how the clock is to be applied to candidates for Scientist or Research Engineer II or III who are entering the track from another position within or outside NCAR.

Recommendations:

- Revise the current policy statement to clarify:
  
  o How the promotion clock timing is determined and applied. Specifically, for example, to be relative to the hire date, with promotion review conducted at the division level before expiration of the term, but with ARG review possibly extending to after expiration in cases of a positive recommendation.

  o How and if the clock and its associated metrics should be interpreted when considering external applicants to the Scientist and Research Engineer II and III positions. For example, nominations of external applicants and internal applicants should discuss the issue and justify cases where the time in scientific positions has been long compared to norms for NCAR ladder-track appointments.

  o Valid reasons that warrant extensions (while still allowing flexibility for individual circumstances). For example, for Scientists and Research Engineers whose goal is to develop new models, technologies, and state-of-the-art instrumentation with associated new infrastructure, the time needed to produce common ARG metrics can be significantly longer than the current clock schedules may permit. We suggest that these circumstances can be valid reasons for extension of time if they interfere with establishment of an acceptable record for promotion.

  o Valid reasons for granting a slowing or stopping of the clock.
• Procedures and decision-making responsibilities for granting extensions and for stopping/slowing of the clock, as these responsibilities are currently not defined. For example, the division director should make the recommendation, to be reviewed and approved at the laboratory level.

• Provide explicit instructions to the ARG on how to evaluate extensions and stopping/slowing of the clock. In the case of extensions, the ARG may evaluate why the extension was granted and whether the merits of the case have changed significantly because of it. For stopping/slowing of the clock, it should be made clear that the ARG will not consider this a factor and that the case should be judged, like others, only on how well the record matches the appointment criteria.

• Clearly communicate these policies to the scientific staff.

4.4 Post-ARG review

Current Policy: http://www.ncar.ucar.edu/central/postarg/

Issues:
• The justification for the PAR is contingent upon Scientist III/IV appointments having tenure protections similar to tenured academic faculty positions.

• Scientist sentiment regarding the current PAR process is predominantly ambivalent or negative. There is a pervasive perception that it adds significant burden and stress but does not achieve the objective of a critical review. Scientists III/IV already undergo an annual review, which is basically the same as that for every other job category at NCAR (and identical to that for Scientists I and II) that is intended to address performance issues.

• The current PAR process requires “considerable effort, particularly on the part of upper management” (NCAR PAR Policy statement). It is estimated up to 38 hours of senior staff and administrative time are required for each case (including no estimate for the reviewee’s time), and that 20-25 reviews will be conducted each year.

Recommendations:
• If the draft tenure policy in the Appendix is adopted, a strengthened post-ARG review process is needed to guard against abuse of the added job security.

• To improve the effectiveness of the review and reduce its administrative burden, we recommend transfer of the process to the division or laboratory level, where the unit Director would have responsibility for the review. The Director would use the unit's senior scientists, plus some additional senior scientists from outside of that unit, as the expertise needed to assess the case. These are the scientists in the best position to assess the quality and significance of the individual's work. We further recommend making the specific process less rigid and using the current process as a guideline that can be adapted as appropriate to specific needs within the laboratories or divisions. Results would be conveyed to the NCAR Director, and if there are concerns there should be a follow-up instituted (perhaps under the terms of the proposed tenure policy).
4.5 Mentoring

Issues:
- There is a strong desire among many members of NCAR staff to establish an organized mentoring program. Such a program should be encouraged across the organization.

Recommendations:
- Each laboratory should establish a program for mentoring that will enhance interactions among Scientists and Research Engineers, especially those early in their career. Participation should be voluntary.
- In these programs, it should be emphasized that mentoring is primarily the responsibility of the person receiving mentoring and that it is his/her obligation to seek advice and take advantage of resources that are available (or to decide that they are not needed). The primary purpose of the mentoring programs will be to identify appropriate mechanisms for interactions and to emphasize that it is part of the responsibility of scientists to serve as scientific mentors to others when they request/welcome the interactions. Mechanisms should be available to seek and receive such advice outside the supervisory structure in the division/program/unit.

Statement on Scientist and Research Engineering Appointments at NCAR

Note: This statement also appears as Appendix C in the full report. The following statement is intended to record NCAR’s policy and procedures with respect to academic freedom, responsibilities, and tenure for individuals on the Scientist and Research Engineer appointment ladders (collectively referred to as scientists herein). It is modeled after the academic policies of UCAR member universities for the purpose of attracting and retaining a high-quality research staff, ensuring and protecting the academic freedom of the staff, and promoting mobility between NCAR-scientist and academic-faculty positions. Tenure refers to the conditions and guarantees that apply to a scientist's rights and responsibilities in the organization, and in particular to protection from discriminatory reduction of salary or termination of employment, and from imposition of serious sanctions, except upon grounds and in accordance with procedures set forth in this policy.

I. ACADEMIC FREEDOM

Excellence in research depends upon an uninhibited search for truth and its open expression. Hence, it is essential that each scientist be free to pursue scholarly inquiry, and to voice and publish individual conclusions concerning the significance of evidence that the researcher considers relevant. Each scientist must be free from the corrosive fear that others, inside or outside the organization, because of biases, differing opinions or other inappropriate factors, may threaten that individual’s job security or professional career. When speaking, writing or acting as a member of the broader community, a scientist must be free from institutional censorship or discipline, subject to academic responsibility. In such instances, the scientist should clearly state that he or she is not speaking for the institution.
A scientist’s comments are protected even though they may be highly critical in tone or content, or erroneous, but such statements are not protected free speech if they either substantially impede the individual’s performance of daily duties or materially and substantially interfere with the regular operation of the institution. False statements made with knowledge of their falsity or in reckless disregard of the truth are not protected, nor are public statements without foundation that call into question the fitness of the scientist to perform his or her professional duties.

II. ACADEMIC RESPONSIBILITY

The concept of academic freedom for scientists must be accompanied by an equally demanding concept of academic responsibility. Scientists have a responsibility to the institution, their profession, and society at large. The rights and privileges of scientists through written policies and procedures on academic freedom and tenure, require the assumption of certain reciprocal responsibilities. Fundamental is the responsibility of scientists to maintain scientific excellence as described in the ARG criteria (see Section 4.1), including the exhibition of professional leadership and productivity through publications, lectures, contributions to NCAR programs as well as national and international programs, participation in professional organizations and meetings, and community service.

III. TENURED SCIENTIST AND RESEARCH ENGINEER APPOINTMENTS

The policies for appointment of scientific staff in the positions Scientist I-IV and Research Engineer I-IV are described in the NCAR Scientific and Research Engineering Appointments Policy 6-5. Individuals in Scientist III-IV and Research Engineer III-IV positions are considered tenured Scientists and Research Engineers. The promotion from level II to level III is an “up or out” decision, and is subject to time constraints as outlined in NCAR Policy 6-5. Appointment to level III and level IV positions are conferred by the NCAR Director with authorization of the UCAR Board of Trustees after review and recommendation of the Appointments Review Group.

3.1 Termination for Unsatisfactory Performance or Misconduct

Other than for financial exigencies as described below, a scientist having a tenured appointment may be suspended or discharged from employment only for reasons of incompetence, neglect of duty, or misconduct of such a nature as to indicate that the individual is unfit to continue as a member of the scientific and engineering staff. These reasons include significant, sustained unsatisfactory performance after the individual has been given an opportunity to remedy such performance and fails to do so within a reasonable time; sustained failure to follow through on commitments to organized programs or to perform other significant scientist obligations; or violations of professional ethics, mistreatment of other employees, research misconduct, financial fraud, criminal, or other illegal or unethical conduct.

The post-ARG review is the process by which the NCAR Director obtains the advice and recommendations of peers regarding the performance of tenured staff. Therefore, the decision to terminate a tenured scientist due to unsatisfactory performance shall be made by the Director after considering the evaluations, recommendations and outcomes from the post-ARG review, which will be conducted every five years for a tenured scientist. The Director may also solicit an interim post-ARG review, triggered by unsatisfactory evaluations in a scientist’s annual
performance reviews. If termination due to unsatisfactory performance is deemed warranted, the NCAR Director must request and receive the approval of the UCAR President and Board of Trustees prior to taking any action. The Board of Trustees shall be provided with the full assessment of the post-ARG process as well as the recommendation of the NCAR Director. Following an approval by the Board, the NCAR Director shall inform the individual in writing of the decision to discharge the individual.

Cases involving termination based on misconduct present special circumstances, often demanding confidentiality or being bound by the rule of law. As such, these cases require a separate set of procedures. The NCAR Director and UCAR legal counsel shall inform the individual in writing of the intention to discharge the individual. The statement shall include specification of the reasons for the intended discharge. A confidential opportunity to respond to the charges shall be provided to the individual. If the evidence of misconduct is not mitigated, then the NCAR Director must request and receive approval of the UCAR President and the Board of Trustees prior to discharging the individual. Depending on the nature of the misconduct, both UCAR and the individual can seek legal remedy.

In cases of research misconduct (e.g. plagiarism, fabrication or falsification of evidence), the individual shall be able to request a hearing from a panel of peers prior to the NCAR Director seeking approval for dismissal from the UCAR President and the Board of Trustees. If the individual makes no written request for a hearing, he/she may be discharged without recourse to any institutional grievance. If the individual requests a hearing, the NCAR Director shall appoint a hearing committee comprised of Senior Scientists to review the case. The hearing shall be on the written specification of the case for academic dishonesty. The hearing committee shall formulate explicit findings with respect to each of the grounds for removal presented and shall recommend whether or not, in its judgment, there are grounds for dismissal. The burden of proof is on the institution to establish, by a preponderance of the evidence, the existence of good cause for dismissal based on academic dishonesty. If the NCAR Director decides that termination is still warranted after receiving the committee’s recommendations, the committee’s report shall be provided to the UCAR President and Board of Trustees in requesting approval for dismissal.

3.2 Termination for Financial Exigency or Reduction Of Programs

The employment of a tenured Scientist or Research Engineer may be terminated because of: (1) a demonstrable, bona fide institutional financial exigency; or (2) the significant curtailment or elimination of a program within the institution. Financial exigency is defined as a change in the financial resources of the institution that compels a significant reduction in the institution's current operations budget. The determination of whether a bona fide condition of financial exigency exists or whether there shall be a significant curtailment or elimination of a major program shall be made by the NCAR Director after consulting with the UCAR President and senior NCAR management and staff, and with approval of the UCAR Board of Trustees. In this or any subsequent consultation process, a tenured scientist appointment may be terminated only after it is determined by the Director, following careful review of alternatives, that the condition of financial exigency cannot otherwise be alleviated without more serious damage to the institution.
If there must be termination of Scientist or Research Engineer appointments, the NCAR Director shall give consideration to tenure status, years of service at the institution, quality and productivity of research and relevance to the priorities of the institution, and other factors deemed relevant in determining whose employment is to be terminated. The primary consideration, however, shall be the maintenance of a sound and balanced research program that is consistent with the functions and priorities of the institution.

In the event of a financial exigency, the NCAR Director shall seek the specific recommendations for solving financial exigencies or program reductions from Laboratory and Division Directors and other senior NCAR and UCAR management, including the President’s Council, as appropriate. The NCAR Director shall assess all recommendations, including the interview of Laboratory and Division Directors, prior to submitting a documented recommendation for termination to the Board of Trustees. If the termination of a tenured Scientist or Research Engineer is approved by the Board of Trustees, the individual whose employment is terminated because of financial exigency or reduction of programs shall be notified of this fact in writing. This notice shall include a statement of the conditions requiring termination, including disclosure of the financial data upon which the termination decision was based, and a general description of the procedures followed in making the decision. For a period of two years after the effective date of termination, the institution shall not fill a new Scientist or Research Engineer position in a similar field of specialization without first offering the position to the person whose tenured employment was terminated.
Subcommittee V—Professional Development/Work Environment

August 26, 2009

Subcommittee Process


The PDWE Subcommittee was tasked to examine several topics developed by members of the WMP Executive Committee as follows:

- performance reviews (including review of management)
- problem resolution procedure
- promotions/salaries and recognition of high achievers
- mentoring
- retention
- hiring the best people in a highly competitive environment
- benefits (health and retirement)
- use (or lack of use) of PTO
- identifying/training the next generation of Directors/Managers
- succession planning, retirements
- review of Leadership Academy (LA) and Executive Leadership Program (ELP)
- flexible work opportunities, UCAR shuttle, Eco Passes
- distribution of staff at the various UCAR campuses (soon to include Wyoming)
- office/lab space
- respect in the workplace

The full Subcommittee discussed all topics and then divided into three Subgroups to focus on the following groupings:

I. Training for staff, managers, and leaders  *(Brigitte Baueuler, Alan Norton, Delaine Orendorff, June Wang)*

*Professional Development topics:*
1. identifying/training the next generation of Directors/Managers
2. staff training
3. review of Leadership Academy and ELP

*Work Environment topics:*
4. problem resolution procedure

II. Mentoring and performance  *(Rebecca Morss, Delaine Orendorff, Roy Rasmussen, Bob Roesch)*

*Professional Development topics:*
1. mentoring
2. performance reviews (including review of management)
3. promotions/salaries and recognition of high achievers
4. distribution of staff at the various UCAR campuses

*Work Environment topics:*
5. respect in the workplace
6. use (or lack of use) of PTO

III. Hiring the best people, retention, and succession  (*Joanne Graham, Doug Nychka, Katy Schmoll, Tim Spangler*)

*Professional Development topics:*
1. succession planning, retirements
2. retention
3. hiring the best people in a highly competitive environment

*Work Environment topics:*
4. office/lab/meeting space
5. benefits (health and retirement)
6. flexible work opportunities, UCAR shuttle, Eco Passes

Subgroup members continued discussion on each topic and wrote a report on each that included the Current State (includes internal scan information), the Desired State, E-Scan information (includes external scan information), and Recommendations. The topics were compiled and the full Subcommittee commented on the PDWE report. The outline for the report is as follows:

**I. Attracting and Retaining Employees**
A. Salaries
B. Benefits
C. Promotions/Reclassifications
D. Hiring the best people in a competitive environment
E. Retention
F. Office/lab space

**II. Developing and Evaluating Employees**
A. Staff Training: Includes new staff training, Director and manager training, and professional development for all staff.
   1. Staff Training
   2. Training of Directors/Managers and review of the LA and ELP
B. Mentoring
C. Performance Appraisals
D. Employee Recognition
E. Succession Planning

**III. Workplace Environment**
A. Respect in the Workplace
B. Problem Resolution
C. Distribution of Staff

SUBCOMMITTEE REPORT

A major aspect of this Workforce Management Plan is attracting, developing, and retaining world-class employees to achieve the Imperatives and Frontiers outlined in the NCAR Strategic Plan. This is consistent with two of the NSF Workforce Plan Goals contained in the NSF Human Capital Strategic Plan (2008). These Goals are “Effectively recruit a diverse, world-class, forward-looking and adaptable workforce” and “Build and sustain a capable, diverse, well-trained, forward-looking, and adaptable NSF workforce and enhance retention through learning and professional development opportunities”. UCAR recognizes that a healthy and vibrant organization is continually monitoring the working conditions for its staff. This includes equity within UCAR and with comparable organizations for salaries, benefits, promotions or reclassifications, employee recognition, office/lab space, respect in the workplace, and problem resolution processes.

In addition, a healthy and vibrant organization must always be alert to professional development opportunities to ensure employees maintain world-class expertise. This includes staff training, mentoring, and effective performance appraisals. It is important that employees understand how they can “move up” in the organization or be prepared to accept excellent job opportunities outside of UCAR. Indeed, although our ultimate goal is to retain excellent employees, there are times when the institute can feel a great sense of pride when a former staff member excels in another organization.

This section of the Workforce Management Plan addresses these issues in three parts: Attracting and Retaining Employees, Developing and Evaluating Employees, and Workplace Environment.

**Conclusion:** UCAR enjoys a low attrition rate. Over the past 10 years total attrition has ranged between 5-11%. For regular employees, it varies between 2-4% per year. The UCAR Climate Survey results indicated that 85% of employees find the climate in their workplace to be welcoming, 88% feel their current job provides ample professional challenge, and 91% would recommend their workplace to others. These facts suggest that our professional development and work environment are very good. However, there are areas that could benefit from improvements and enhanced communication of processes. In addition, the organization must continually monitor and evaluate these areas to ensure a content and productive workforce.

I. ATTRACTING AND RETAINING EMPLOYEES

A. Salaries:

**Current State:**
The UCAR Compensation philosophy is as follows:

*It is the philosophy of UCAR to pay salaries designed to attract, retain, and motivate the highest caliber talent to ensure UCAR's continued world leadership role in the scientific research community. To this end, within the means of the organization, the salary ranges will be set at or above specified levels in designated labor markets while considering internal equity as an additional factor.*
UCAR participates in 14 salary surveys that represent our labor market competitors in order to market price our jobs. Current practice is to match UCAR jobs to the 50th percentile of base pay. There is a general sense that UCAR salaries are competitive with peer institutions and that UCAR salaries are not as competitive with private sector companies for some job categories. This may be true, especially if private companies offer bonuses and stock options, which UCAR does not offer. There is some confusion between market data which determines salary range and pay within a position. In some job categories the compa ratios are low in general, meaning that pay in the range is below the market point, not that the range itself is below the 50th percentile of market data.

It is difficult to ensure equity across the organization given that different groups have more or less available funding for salaries. There is also some concern that it can be difficult to hire new employees at competitive rates if current employees across the organization are low in their range, which causes equity issues. The Workplace Climate Survey results showed about 20% of respondents were not satisfied with their compensation and with the fairness of compensation policies and practices.

**Desired State:**
UCAR should be competitive with its total compensation, specifically when compared with clearly defined labor market competitors (whoever management determines these to be) or should have a mechanism to offer competitive salaries for key, high performance employees. Creating differentiating factors for high performers would be key to this process so that employees understand what it takes to be a high performer and how they can achieve this distinction.

**Recommendations:**
The President’s Council should discuss UCAR’s total compensation package, e.g., pay, benefits, working conditions, performance management, etc. and determine, in a strategic context, whether our current total compensation is meeting the needs of the organization in terms of attracting and retaining employees or whether modifications to the current state are desirable.

**B. Benefits**

**Current State:**
UCAR offers a comprehensive set of benefits, including flexible work alternatives (flextime, flexiplace, compressed work week, etc.), dependent care assistance, family sick leave, a subsidized day care center, short term salary continuation and long term disability, as well as health and life insurance and a 10% of salary contribution to employees’ TIAA-CREF accounts. The Workplace Climate survey showed 92% of respondents felt they can take short-term leave without jeopardizing their career opportunities, however 23% do not feel free to work part-time without retribution or conveying the misperception that they don’t take their jobs seriously. Although 76% or survey respondents indicated their supervisor supports their Flexible Work Alternative needs, there is anecdotal evidence that flexible work alternatives are not always made available for eligible employees.
UCAR has a liberal vacation/Paid Time Off (PTO) policy. There is a concern that, due to workload, some staff do not take PTO and are, therefore, risking job burnout.

E-Scan Information:
The UCAR benefit program is competitive with other institutions and, in many cases, more generous.

Desired State:
Supervisors are encouraged to grant flexible work alternatives to employees. Supervisors are sensitive to high stress periods for their employees. Employees understand the various benefits available to them. HR continues to regularly evaluate benefits offered to ensure that we are competitive with our peer institutions. Employees and supervisors recognize the importance of taking adequate time off.

Recommendations:
In order to ensure fair application of available benefits, provide training for supervisors and managers so that they can identify and successfully deal with stressful situations for their employees and also understand the flexible work options supported by UCAR. Supervisors and managers should also be given tools to adjust workloads and job assignments in order to give employees the flexibility to take vacation/PTO. Training should be provided in a number of ways: leadership academy, supervisor certificate classes in staff development, UMC and NCAR Directors meetings. Show how UCAR benefits compare to other organizations by providing data available from surveys and the web. Communicate to staff how to address questions concerning benefits.

C. Promotions/Reclassifications

Current State:
Promotions are handled differently for Scientists and Research Engineers than other employee classifications. Ladder track scientists are promoted through NCAR Scientific and Research Engineering Appointments Policy, which is a person-based process. The person gains the necessary skills to move to the next level in the career track. Issues relevant to this group are being handled by a different working group, so the focus here will be on the remainder of the UCAR staff.

UCAR does not routinely “promote” staff. Employees can be promoted through applying for higher level positions and competing with either internal or external candidates for the job. UCAR does recognize the growth of duties and responsibilities performed by individuals, however, through its “reclassification” process. A position reclassification is the assignment of a new job title and/or range to an existing position. A position may be reclassified to recognize significant changes in the duties and responsibilities of the position. The evaluation may result in an upward or downward move, or no change, in the salary range of the position. A revised Position Description is proposed by the supervisor and authorized by the Laboratory or Program Director. An employee should be fully performing all of the new duties and responsibilities listed in the new Position Description prior to a reclassification request. There is also anecdotal evidence that employees do not understand the reclassification process in general, and specifically in terms of when a reclassification is appropriate (a significant increase in higher
level job duties and responsibilities.) There remains confusion around what our job based system means in terms of reclassifications.

In the Workplace Climate Survey, 51% of respondents felt their current job provides opportunities for advancement, 56% see a career path for them in the organization, 53% felt that promotion or reclassification decisions are based on a record of accomplishments, and 31% felt there are opportunities for them to be promoted to management positions.

**E-Scan Info:**
The E-Scan information primarily deals with tenure track scientific and research positions. Little data has been gathered on the rest of the staff within these organizations, and the questions posed did not solicit this type of information. MITRE did mention that their promotion process is based on demonstrated higher levels of capability.

**Desired State:**
The desired state would be that employees feel that position reclassifications are dealt with fairly and equitably and that there is transparency in the process so that employees clearly know the criteria for reclassification.

The reclassification process could be affected by succession planning. For example, if UCAR decides to support promotional opportunities through succession planning, UCAR could support this by promoting employees internally first, and then hire external candidates to fill vacated positions. Promotional policies should be developed consistent with this and be clearly communicated to all staff.

**Recommendations:**
This recommendation is based on the staff not covered by the UCAR Scientific Appointments policy.

Clarify and communicate to all staff the reclassification process and philosophy behind it. Ensure a mechanism is in place to hold supervisors accountable for appropriate classification and salary levels of their employees and to provide employees with a path of recourse if needed.

**D. Hiring the best people in a competitive environment**

**Current State:**
NCAR strives to hire the best people into the organization at all levels. For most advertised positions competition is very steep. For higher level positions hiring supervisors often find that the salary expectation on the outside is significantly higher than what the UCAR ranges offer. Since candidates do not know our salary ranges in advance, it is difficult for a hiring supervisor to know if a candidate will still be interested once they are aware of the pay range (at the interview phase). This creates a challenge for supervisors who are trying to find the right candidate in a large pool.

For Scientists, early career scientist openings are competitive and attract a good number of young scientists. More senior positions take a very long time to fill, in part, because positions become more specialized as they become more senior and there is no translation between a level
that one has achieved at a University or National Lab and NCAR. As a result potential incumbents must wait for the ARG process to occur before a solid offer can be made that guarantees the position level. Young scientists going through the central Scientist I process are given start up funds of 20K including overhead from the NCAR Directorate. This is generally used for personal computing equipment, international travel, and sometimes to furnish an office. It is not the NCAR norm to provide support staff or a generous start-up fund to divisional scientist hires, though some divisions provide small start up funds to all new scientists.

**E-Scan:**
The internal scan revealed that many hiring supervisors and administrators feel that the screening process in HR might be flawed and would prefer less screening. There is a strong sense that automatic filters applied in Open Hire do not work properly and there is some sense that HR should not weed out applicants unless there are completely obvious reasons. As evidence, there was recently an offer made to a Scientist III who was originally removed from the candidate pool by HR filters.

There is a sense that for some positions we could do a better job at casting a wider net. In other words, we might strengthen the pool of "best" employees if HR and hiring supervisors work together to determine optimal locations for advertising.

From the external scan it was clear that various institutions provide start-up scientists with varying levels of support. One institution reported offering their new scientist up to 750K to be spent or lost in three years. This provides the new scientist with the opportunity to build a program. Others offered nothing in terms of actual start up funds, but those that did were mostly much more generous than NCAR's standard 20K. Additionally, some institutions (not all) reported offering their scientist hires ample support staff.

**Desired State:**
NCAR is competitive at attracting the top talent in all job categories. HR and divisions work to streamline hiring processes while also assuring that hiring supervisors do the vast majority of eliminating candidates from the pool (or specifically ask HR to do it). Salary ranges are posted in order to attract appropriate candidates. A culture where it is normal to use the whole salary range when making job offers to acknowledge the range of qualifications within that job range. Work toward better equity in this way (not equality in pay based on current criteria, but equity in terms of qualifications).

**Recommendations:**
Provide information about salaries at time of job opening. Allow supervisors to decide level of filtering that occurs in HR before applicants are presented to hiring supervisors. For scientist positions (including some project scientists), consider developing a central pool of ample start-up resources (e.g., computer, high-performance computing time, shared support staff, possibly major laboratory equipment) and funds for other needs and ongoing support for key positions so that we can attract the best of the best.

**E. Retention**

**Current State:**
NCAR enjoys fairly low attrition rates. Over the past ten years total attrition has been from five to approximately 11%. For regular employees it varies between two and four percent per year (Certain types of employees are not classified as “regular”; those excluded include term employees, student assistants, visitors, post-docs, graduate research assistants and casuals). It appears that attrition rates are consistently highest in areas such as scientific support and administration and slightly lower in Scientific and Research categories. There is a sense in some of the science divisions that we are losing key scientific staff to organizations that can offer higher salaries and comparable benefits.

E-scan data:
There were no significant trends reported in the data received that seemed different from the NCAR/UCAR experience with regard to loss of staff. Some groups have experienced loss of key personnel, others did not report specifics on this. Most groups reported that they have formal retention policies and programs (with varying degrees of success), though nearly all of them seemed reactive (i.e., bring in a firm offer and we’ll match or increase it). At least one reported that it seems be used as a way for staff to seek higher salaries. Another group reported offering 80K bonuses to key staff who considered leaving– paying them over two years. Many organizations have similar flexible work policies to UCAR, but there didn’t seem to always be a correlation between this and retention, though it was clear that employees enjoy that in some of the reports. Some organizations offer excellent start up packages to key staff. For example CIRES reported offering start up packages to fresh PhD in social sciences of $50 – 75K, and that same position in physical sciences would be on the order of $100K. Senior staff receive significantly more (reported up to $400K). CIRES reports wanting to do as much as they can for their new hires in hope that they can be successful. A foreign agency, ECMWF, reports excellent retention even though they offer management positions a maximum of two five-year terms in same management position. Scientists do not receive tenure but get five year contracts subject to renewal upon excellent performance. They report that this provides a strong motivation to continue excellent performance on an ongoing basis.

Desired State:
Retain a staff of motivated, hard-working individuals who strive for excellence throughout their careers and are working to their potential. Also, maintain opportunities to infuse the staff body with new ideas and fresh perspectives to guide us into the future. Since the budget is not infinite, some moderate amount of turnover in all classifications and at all levels is desirable.

Recommendations:
Retention at UCAR is generally not an issue, however, management should continue to monitor it. Management should assess whether there are critical areas that may need to be strengthened to ensure continued operation if key staff members leave the organization.

F. Office/lab space

Current State:
NCAR and UCAR staff in Colorado are spread across many buildings on four campuses. Other staff are located in Washington D.C. A variety of work space types are available throughout the campuses including cubicles, windowed offices, interior offices, laboratories, computer rooms and aircraft hangars. UCAR has standards for how they allocate bulk space (i.e., 110 square feet
per person), but labs, divisions and programs are responsible for the allocation of this space once it is identified. Many staff occupy offices on more than one campus. NCAR/UCAR employees spend a great deal of time in transit to meetings which are held on all of the campuses depending on who is hosting the meeting. The current allocation of space to divisions and programs is not currently ideal for keeping groups in close proximity to one-another and divisional visitors.

Internal Scan Data:
Survey data of administrators and managers indicates that labs, divisions and programs have methods for allocating space and those are generally known by the staff they serve. One person described the system as chaotic. Eighty-eight percent of staff who completed the all-staff survey feels that space allocations are fair. Those who use lab space also indicated they thought the allocation process is fair.

Desired Outcomes:
A reassessment and reallocation of space “flow” across the organization is necessary so that staff are in close proximity to other divisional staff and visitors. A well-understood policy on space allocation that includes information on the provision of space to staff with joint appointments, multi-campus collaborations and space for retirees is needed. Continued feeling that fairness prevails in decisions and policies is also desirable. Additionally, NCAR/UCAR should strive to reduce time commuting to and from meetings by providing technological options across the organization.

Recommendations:
Positive steps are already being made to reassess space issues in our organization. Continue to empower Directors and Administrators in these discussions so that all occupants of a given building are treated equitably. Laboratories/Divisions should clarify and communicate to staff their respective process for allocation of office/lab space. In this way, communication and open processes for space allocation are known. Assess simple but effective means of providing tele-meeting solutions to all staff so that less time is spent commuting to meetings and to further reduce NCAR/UCAR carbon footprint.

II. DEVELOPING AND EVALUATING EMPLOYEES

A. Staff Training: Includes new staff training, director and manager training, and professional development for all staff.

1. Staff Training
   Current State of Technical Training for UCAR employees:
   UCAR has several programs by which employees can get technical training:

   1. UCAR’s Educational Assistance Program, by which eligible employees have expenses paid to attend an educational (degree) program.
   2. UCAR provides a number of internal training classes on a regular basis, such as security training, application training, personal development training.
   3. With permission of employee’s management, employees can have expenses and time paid to attend courses given at conferences or educational institutions.
4. UCAR’s sabbatical program will pay six months employee salary for Software Engineer IV, Engineer IV, Project Scientist III, Scientist and Research Engineer III’s, and senior scientists once every six years, for employee to participate in management-approved professional development activities.
5. UCAR employees are welcome to take on-line training, provided free through HR or COMET.
6. The NCAR Software Engineering Assembly (SEA) has recently obtained funding from NCAR for several software engineering classes that are being provided through HR.

There is no UCAR-wide policy for determining an employee’s eligibility for training. There is no budgetary standard to cover training, so that the available training opportunities can vary depending on a department’s current financial condition. The HR website lists many of the above educational opportunities; however other options such as the sabbatical program or management-paid courses are not widely publicized. The standard staff appraisal form has a section for development, which may potentially be used as an incentive for training (depending on management priorities). In the Workplace Climate Survey, 70% of respondents rated staff training and development as adequate and 63% felt the time and funds for training and other business were allocated fairly.

**E-Scan information:**
Many of the peer institutions surveyed were academic institutions, whose training programs were fairly unstructured, probably because of the availability of academic courses for staff within the institution.

The nonacademic institutions that were surveyed did indicate the availability of technical training for staff, including many programs similar to the UCAR programs listed above. However most of these reports included no detail to indicate the level of support for the training or to evaluate its effectiveness; e.g., how many employees participated or what incentives were provided for participation. An important exception was NOAA ESRL, who reported that employees “Have to take a certain number of courses to stay current” and that “roughly 6% of funds are supposed to be set aside for training but this is variable”.

**Desired State:**
Employees understand that UCAR is supportive of each employee’s professional career development as it applies to the needs of the organization, and that, as a professional, each employee has the opportunity to participate in training programs that advance their skills. Employees understand that UCAR values their continued professional development, as evidenced by UCAR management encouragement for attending such courses.

In some job categories, technical training may be regarded as an essential part of the job at UCAR. This expectation should be communicated and encouraged by explicit mention of it in job descriptions, employee benefits website, and performance reviews.

All employees should have a plan for their continuing development, specified in their annual performance review and agreed to by management.
Training courses that are widely attended should be offered through HR. However it is understood by employee and management alike that employee training may need to be customized to fit the needs of the organization and employee’s career objectives; and that specialized training courses (and associated travel costs) that meet this objective will be paid for by UCAR as needed and when financially feasible. A reasonable amount of funds for professional training should be available for each Laboratory.

**Recommendation:**
Management should establish a line item in the ABR for staff training and clearly communicate the policies for use and reporting requirements of the funds. Supervisors should be made aware of their respective Lab policies and their responsibility to ensure employees are adequately trained for their current job requirements.

Management should publicize the availability and, if needed, expectation of professional training in the employee benefits website, and in the new employee training courses. HR should continue to work with internal professional groups to expand its offering of employee training as resources permit.

The UCAR F&A education website should explain all the types of training that are available to employees, an explanation of the procedures that are followed to obtain such training, and the requirements for obtaining other training.

**2. Training of Directors/Managers and review of the LA and ELP**

**Current State:**
UCAR currently offers three programs that specifically focus on training of current and future managers:

1. Executive Leadership Program (ELP), which targets management at the highest level within UCAR/NCAR;
2. UCAR Leadership Academy (LA), which provides knowledge and skills for middle management and/or future leaders;
3. UCAR Supervisor Certificate Program (SCP), which targets entry-level supervisors and managers.

In addition, employees can take advantage of training supported through
4. UCAR’s Educational Assistance Program, i.e., financial support for completion of a degree program such as an Executive MBA. Degree programs require permission from an employee’s supervisor/management.
5. The use of divisional program funds that pay for expenses related to off-site and/or on-line training courses provided by outside training institutes. These training classes are often expensive, require travel support and require permission from an employee’s supervisor/management.
6. UCAR Staff development classes offered through UCAR HR, which cover areas such as supervisory skills, hiring skills, performance management, etc.
The overall assessment of the ELP has been positive and is considered a worthwhile program, especially as a follow on to the Leadership Academy. Queried participants agreed that the ELP program met expectations and was relevant to their jobs, and that the majority of the key areas of learning elements are now implemented into participant’s leadership style. Nevertheless there seems to be a lack of interest or reluctance to participate in this program due to the significant time commitment required (9 months). Due to the small number of eligible UCAR/NCAR staff, the ELP is not offered every year.

A set of UCAR Management Competencies is posted on the HR website at http://www.fin.ucar.edu/hr/leadership_academy/competencies.html. Training in and development of these competencies are the main focus of the LA. To participate in the LA, the employee has to be nominated by the division or laboratory director. In 2008, Human Resources, with the help of a LA graduates focus group conducted an in-depth review of the program. Feedback on the program was solicited to understand its lasting and/or immediate impact, and to obtain suggestions to continue to fine-tune the program. Overall, the large majority of the LA participants considered the course a very worthwhile, exciting, and interesting part of their professional development. Suggested improvements, training of additional skills, and topics for future sessions resulting from the review were incorporated into the updated/revised 2010 LA program.

No formal review of the SCP has been conducted, and the usefulness/value of the program is currently unclear. Thirty-five people are enrolled in the program of which eight have completed enough credits to get their certificate. Certificates are placed into the employee record and copies are sent to their supervisors.

Access to training outside the ELP, LA and SCP is available and there is a wide selection of programs and classes to choose from. Most of these programs target for-profit-organizations and may have a somewhat different approach to management. Participation is primarily driven by an employee’s initiative, motivation and resourcefulness, and heavily dependent on financial support by management.

Most managers within UCAR are promoted through the ranks because they have strong job skills and they have a proven track record for getting results, not necessarily because they have effective leadership and people skills.

There are no UCAR-wide guidelines on how much time and resources should be invested in ongoing training of managers and leaders.

Since most jobs at UCAR/NCAR are not performance-based and turn-over at the management level is low, there seems to be limited incentive to pursue management training.

**E-Scan information:**
Three of the government organizations surveyed (NOAA/ESRL, NREL and MITRE) require and offer structured management training programs that focus on leadership skills and performance management. Training courses are either provided by affiliated universities, or federal/agency-wide training institutes. NOAA requires annual refresher courses and has a set of requirements
for executive level staff. Unfortunately there was not enough detail to examine training programs
in depth.

Several of the academic institutions surveyed rely on the availability of academic courses within
the institution, but ongoing training is not mandatory. For obvious reasons, the main focus at
universities is on effective teaching skills. Other activities included shadowing of managers and
lateral transfers from project to project to gain additional experience in project management and
budgets. No detailed information was provided to evaluate the effectiveness of these programs.

**Desired State:**
All managers and leaders receive or have access to on-going training, refresher courses and
mentoring to deal with common management issues.

All managers have a plan for their continuing professional training, specified in their annual
performance review and agreed to by management. Five-year development plans are living
documents with realistic goals that focus on improving and fine-tuning management and
leadership skills. A reasonable amount of funds for professional training should be available for
each manager.

**Recommendation:**
UCAR/NCAR management should continue to implement a leadership program that meets the
organizations’ needs for future talent especially considering that a significant percentage of
senior executives and middle managers will be eligible for retirement over the next decade.

LA and ELP are intense training classes that require a significant time commitment. Explore
additional forums such as comprehensive, web-enabled development tools that provide online
training classes on a 24/7 basis. An example is NOAA’s Commerce Learning Center, which
hosts a variety of courses and services through the NOAA Workforce Management Office. It
may be possible to tie into already existing management tools.

Further explore NREL, MITRE and NOAA training curriculums to assess usefulness and
effectiveness, especially of ongoing training requirements and content.

Regularly obtain feedback from employees on the performance of managers and leadership to
further develop and fine-tune management skills.

**B. Mentoring**

**Current state:**
The workforce climate survey indicates that only 52% of staff feel adequately mentored and a
significant fraction of staff rarely or never have conversations with supervisors about topics
important in many mentoring relationships. Despite much discussion, the mentoring system at
NCAR/UCAR overall remains largely ad hoc, for both scientific and non-scientific staff, and
some people are not provided with mentoring.

Based on the Director and Administrator meeting, most UCAR programs do not currently have a
formal mentoring program. One laboratory has a lead person who works with all early career
scientists to understand and prepare for the promotion process, and this lab involves senior management and group leaders in mentoring early career scientists and/or identifying other mentors. No specific programs for staff besides early career scientists were discussed. Directors and administrators reported that more formal efforts have been attempted previously but were not successful. Nevertheless, some UCAR programs support a model where employees or supervisors can request to be mentored or to mentor. Challenges raised include assessing the need for and success of mentoring efforts and providing mentoring training/support.

Several of the external organizations surveyed have no formal mentoring program, relying on informal mentoring or mentoring through supervisors as in most UCAR programs. A few organizations said that mentoring was regarded as part of a supervisor’s job, and one said that performance evaluations include a mentoring component. Several said that junior faculty or employees were assigned one or two more senior mentors. In one case, the junior faculty member meets with his/her mentors monthly. One organization reported a new program to focus on traditional and reverse mentoring, with each division having a champion for mentoring. Another organization reported active mentoring in terms of moving people from research “support” positions (scientists and post-docs) to more leadership/management/PI roles in research groups.

**Desired state:**
Employees in all job categories feel that adequate mentoring resources are available to them, and supervisors and mentors feel that they have adequate time, training, and resources to mentor. Mentoring is rewarded within the organization.

**Recommendations:**
UCAR should establish a mentoring program for mentor training and to serve as a clearing house for mentors. This program would not be required but would serve as a resource for mentors and those seeking mentoring. Mentoring to help interested people move into leadership/management roles should be included.

**C. Performance Appraisals**

**Current State:**
UCAR has four standard forms for Performance Appraisals (PA):
1. NCAR Scientists 1 and 2
2. NCAR Scientist 3
3. NCAR Senior Scientist
4. All other staff

There are also optional forms that may be used for Employee Evaluation of Supervisor and Five Year Career Plans. Standard instructions and schedules are provided.

The forms for Scientists include some of the same sections as the general PA, but also include sections on publications and work in progress. These forms also include an evaluation of the Scientist’s likelihood of advance and continued appointment.
The general PA form has four sections:

a. **Proficiency of job related skills and competencies**
   This section is required for employees new to the job and optional for other employees. It is recommended for employees who have had a significant change in skills or competencies.

b. **Performance of key activities**
   Employees who have been in their current job for less than two years must have a detailed annual performance review on all key activities it is optional for other employees unless there are deficiencies.

   For supervisors, key activities include Leadership and Administration and effective administration of the performance management system for subordinates. For all employees, a list of activities that encourage diversity is requested.

c. **Coaching and development planning**
   This section should be completed each year for every employee. For employees whose job is focused on annual projects or assignments, the development of goals for the upcoming performance period may be the most important part of the appraisal.

d. **Overall performance**
   There are two ratings: "Performance Meets or Exceeds Job Requirements" or "Performance Does Not Meet Job Requirements." All ratings of “Does Not Meet” require consultation with HR. A written summary of the employee’s performance is also included. This describes the employee’s performance for the year and any change in the employee's long term performance, either up or down.

Submission of the PA by each employee’s supervisor is mandatory and every employee receives an evaluation each year.

Training is offered to supervisors on Performance Management and Appraisal Skills. The training is optional, but part of the UCAR Supervisor Certificate Program. The Program includes the following competencies:

1. Communicates clear performance standards, goals and expectations.
2. Provides timely and appropriate feedback to acknowledge good work, and also to correct deficiencies including under-performance, inappropriate behavior, etc.
3. Helps staff feel valued, appreciated and included.
4. Provides resources for employees needing assistance.
5. Assignments are appropriate to employee capabilities and provide growth opportunities.
6. Identifies and discusses professional development opportunities, including optional five-year career plans (career goals)
7. Aware of internal training and development opportunities.
8. Provides effective orientation programs (within program) for new staff.

There is no mandatory training for supervisors on PAs.
In practice, the components of the form are submitted either using the standard form or in a memorandum. There is a wide variety in the look of PAs throughout the organization; a rating of “Performance Meets or Exceeds Job Requirements” or "Performance Does Not Meet Job Requirements" is supplied for all employees. Some areas of the organization use different internal processes to evaluate employees and may use an internal rating process or scale to distinguish levels of performance, especially to determine merit increases. In general, the written summaries of performance correspond to the level of increases and when audited support pay actions. The skill sets of supervisors vary widely, and most supervisors submit passable PAs. Anecdotal input suggests that some supervisors do not spend a lot of quality time working with employees during the year in the area of performance or personal development.

Overall, the standard PA process is designed to measure competencies and results on key activities. The design is primarily focused on personal development. The lack of a true performance rating is consistent with developmental focused PAs. There is no section for personal results driven objectives (MBO) although it may be a part of the performance discussion for project based jobs. There is no formal planning step for the upcoming year, other than for developmental goals; the PA appears to be more “look back” than “look forward”. There is no formal link to program or organizational goals…no cascading of strategic or tactical goals, again consistent with a developmental focus. The link to strategic competencies is weak, although the addition of a diversity component is certainly a strategic competency/activity. UCAR has developed a list of competencies for management that are not strongly linked to the PA. There are no critical deficiencies in the current PA process. The biggest deficiency is in supervisor training, which is true for most systems.

**E-Scan information:**
Of the peer institutions surveyed, most had a traditional PAs. Several had standard 4 to 5 point rating scales and some restrict the number of employees in top ratings. One has a 100 point scale, one uses three tiers with top tier limited to 10%, and some are linked to merit pay systems. Did not get the sense that any were considered “best practice” (some effective, some in need of improvement). In the internal survey of Labs, most of the discussion of the PA centered on its use for training, development and mentoring. There is a perception that not enough is done to recognize exceptional performance, but it is often identified in the appraisal process.

**Desired State:**
The PA process should support organizational strategy and help achieve organizational goals. It should be consistent with the desired culture. It should appropriately support other internal systems such as pay, training, discipline, termination, promotion, succession planning, promotions, etc. The PA process should be efficient and easy to use. The process should add value to users and not seen as just an administrative burden. It must conform to legal requirements for PAs. The process should be ongoing throughout the year. All users of the process should be adequately trained. The process should be seen as equitable. The process should meet the needs of the organization at all levels.

**Recommendation:**
Performance Appraisals are linked to other important systems including pay and rewards, employee development, promotions, mentoring, employee recognition and succession planning.
Once a final recommendation has been made in these other areas, the appropriate type of Performance Management System needs to be developed to support those systems. The modification or redesign of the PA should be led by a project team including representatives throughout the organization. Ownership of the PA should be with managers and supervisors across UCAR and not held within HR. UCAR also needs to address the appropriate balance between consistency in the organization and flexibility for appropriate use in different subsets of the organization.

D. Employee Recognition

Current State:
“It is the philosophy of UCAR to pay salaries designed to attract, retain, and motivate the highest caliber talent to ensure UCAR's continued world leadership role in the scientific research community. To this end, within the means of the organization, the salary ranges will be set at or above specified levels in designated labor markets while considering internal equity as an additional factor. Additionally, UCAR will reward employees according to their contributions through a pay-for-performance evaluation system. UCAR rewards high achievers through higher than average merit increases.” Over time, a high achiever with sustained performance should have a higher compa ratio (pay divided by the midpoint of the range) than an average performer. The challenge for UCAR is to apply this practice uniformly throughout the organization, and the criteria for what defines a high performer is largely left up to individual entities or supervisors. Since we do not have a formal link of pay and performance, we could have “high performers” in one group with lower compa ratios than other groups.

UCAR currently has a variety of methods of rewarding and/or recognizing employees. Employee Recognition Awards Policy 6-14 sets out the criteria for Distinguished Achievement Awards, Outstanding Accomplishment Awards and Local Appreciation awards. All employees are eligible for these awards. Either an individual or a team may be nominated.

The Distinguished Achievement Award recognizes distinct and extraordinary accomplishments with identifiable impacts that have provided a significant advance in enabling, understanding, or communicating key scientific issues during the past five years. The monetary value consists of an individual winner receiving $10,000; a team shares an award of no more than $25,000.

The Outstanding Accomplishment Awards recognize contributions and achievements in the following categories: Publication, Scientific and Technical Advancement, Administrative Achievement, Education and Outreach and Mentoring. Monetary prizes are awarded as follows: $3,500 to a single winner; $1,750 each to two winners sharing an award; $1,500 each for three to six winners sharing an award; and a total of $10,000 split equally among seven or more winners sharing an award. UCAR pays the personal income taxes on these awards for recipients who are current UCAR employees.

The Special Recognition Awards program is designed to recognize single instances of extraordinary work performed by employees. Employees may qualify for a Special Recognition Award if one or more of the following criteria are met. The employee has:
1. Performed single-instance services that are of outstanding quality or of unusual importance to the execution of UCAR's programs;
2. Displayed commitment to activities or demonstrated outstanding skill or effort above and beyond his or her prescribed duties and workload;
3. Saved significant time or money; and
4. Maintained an excellent level of performance during an organizational emergency or period of high stress, or shown great ingenuity or perseverance.

Special Recognition Awards are not for the purpose of recognizing sustained excellence in assigned duties; such service is rewarded through the regular salary administration system. Nor are the awards intended to recognize sustained performance of duties not included in the employee's job description. In those instances, a new job description should be generated and reclassification considered.

Finance and Administration has a spot award program called the STAR Program. The purpose of this program is to provide a means for co-workers to immediately recognize a fellow employee’s performance. Other parts of the organizations have similar programs.

**E-Scan Info:**
The E-Scan identifies programs similar in nature to the UCAR Recognition programs listed above. Some of the federal agencies appear to have a salary plus bonus system in place, where employees can get annual bonuses for performing well. Some of the E-Scan organizations also pay for dollars brought into their organizations.

**Desired State:**
Employee recognition programs should support the organizational strategy and goals and reward the types of behaviors that the organization wants to encourage. The process should be seen as transparent and equitable so that all employees understand the actions necessary for eligibility for employee recognition awards and merit increases. Recognition of high achievers and employee recognition in general should be addressed through the pay for performance system. Criteria that can be applied equitably across the organization should be developed and communicated across the organization, allowing for differences in job groups. Supervisors will need to be trained in the relevant procedures and how to identify high achievers.

**Recommendations:**
UCAR should ensure that its employee recognition and rewards policies and practices:

1. Continue to be part of the UCAR culture to support the organizations goals and mission
2. The criteria are well communicated to all staff
3. Supervisors are trained in the application of these policies
4. Develop and communicate processes within the Labs for awards less than $500.

**E. Succession Planning**

**Current State:**
Divisions, Laboratories, and Programs have no formal program to identify and mentor candidates for key positions such as supervisor, engineer IV, project scientist III, manager, and director positions. Identification and mentorship does occur in many entities and is effective at times but is not consistent across the organization, and talented individuals with significant potential can be overlooked. UCAR offers both leadership and executive leadership programs that effectively assist current and future UCAR leaders to develop their skills. The decision on whether to employ an internal or external search is often driven by budget considerations, and some internal candidates are unable to compete effectively with external candidates.

**Desired State:**
A program exists throughout the institution where both interested candidates and candidates nominated by their organization can apply to enter a training program that can prepare them for key positions. This program, over several years time, provides both in-residence instruction, opportunities for external training, and temporary assignments that provide real world experience. The institution consistently employs external searches for leadership positions and internal candidates successfully compete with external candidates.

**Recommendations:**
Create a training program that prepares talented and interested staff to move into key positions. This program would go beyond leadership programs by providing training and experience in management, project management, administration, corporate and public policy, business development, and supervision. The program could include classes as well as temporary assignments throughout UCAR, including acting Director/Manager positions, and in sponsoring agencies. The program would involve a review of applicants for admission in order to maintain quality and diversity. As a result of this program, individuals in one division could come to the attention of other divisions, and UCAR would have an internal pool of well trained and mentored candidates who could effectively compete in external searches as well.

**III. WORKPLACE ENVIRONMENT**

**A. Respect in the Workplace:** We define *Respect* as Respect of self and of others. *Respect* includes: respect for the environment; respect for other people's privacy, their physical space and belongings; and respect for different viewpoints, philosophies, religion, gender, lifestyle, ethnic origin, physical ability, beliefs and personality.

**Current State:**
According to the Workplace Climate survey, over 85% of UCAR staff find the workplace climate at UCAR to be welcoming or accepting, suggesting that the current work environment has a high degree of respect. The answer to the question “Does my supervisor treat me with respect?” engendered the most positive responses of all the supervisor questions, with over 95% agreeing strongly. The positive respect environment at UCAR is also supported by strongly favorable responses to questions such as “My supervisor is accessible, My supervisor is easy to discuss ideas with”. The lowest response, while also strongly positive, was “My supervisor encourages me in my career goals”. This suggests that mentoring activities could be a mechanism to further increase respect in the workplace. This topic is addressed separately in this report.
The workplace climate survey results indicate that employees find UCAR/NCAR a very respectful workplace. However, there was some small amount of dissatisfaction that should be addressed if possible.

**Desired State:**
An organization in which all employees are respected and valued. We are very close to the desired state now according to the workforce climate survey, so any changes to the UCAR culture and environment should be minor.

**Recommendations:**
It is suggested that HR continue to provide training/processes/support on how employees can deal with staff that are having a negative impact on the climate of UCAR as an accepting a respectful place to work.

**B. Problem Resolution**

**Current State:**
UCAR currently has a number of avenues for problem resolution. Policy 6-8 states that “The interests of both employees and UCAR are best served when any problems relating to the workplace are resolved as part of the regular communication between employees and between employees and supervisors.” The policy goes on to outline the various options available to employees, listed below.

*Informal Discussion:* Many problems can be resolved through communicating with the individual(s) with whom the complaint exists, whether it is with a fellow employee, subordinate or supervisor. Employees are encouraged to discuss concerns at an early stage with intent toward resolution. The employee's supervisor should normally be the first source of assistance.

*Discussion with Supervisor:* An employee who disagrees or is dissatisfied with a supervisor or manager action should, if possible, discuss the concern with that individual. If preferred, or if the employee is unable to resolve the problem with the supervisor or manager, the employee should discuss the matter with the next level supervisor or manager. The majority of misunderstandings can be resolved at this level. This discussion should be held promptly, typically within five days, to allow for a timely resolution. If the problem cannot be resolved in a satisfactory manner, the problem may be discussed with the next level manager, up to and including the Division, Lab, or Program Director.

*President's Council Member:* If the Division or Program Director is unable to resolve the employee's problem, the employee must submit a written complaint stating the relevant facts and desired remedy to the appropriate President's Council member for review and a decision. The President's Council member will respond in writing to the complaint within 30 days.

*President's Council:* Finally, if resolution has not been achieved in previous steps, an employee may seek to have the President's Council review the concern. A written complaint stating the relevant facts and desired remedy must be provided to any one member of the President's Council. The President's Council will carefully review the situation by considering the facts presented. At its sole discretion, the President's Council may exercise other options that may
include: (a) additional fact gathering; (b) informal mediation with an internal or external neutral third party to mediate between the concerned parties; and (c) forming an ad hoc advisory panel to include peers of the concerned parties.

The President will review the President's Council recommendations, and after full consideration the President will issue a written decision. This decision is final.

Employees and management may consult with the Human Resources Department at any time for counsel, coaching or clarification of this policy and these procedures.

In addition to the policy employees can engage the Delphi process if they have a workplace concern. The UMC recently approved the addition of a volunteer Ombuds position, although to date this position has yet to be filled. UCAR also offers employees numerous training classes to deal with issues such as conflict in the workplace, and supervisory mediation training.

Options available for problem resolution are covered in new employee orientation and employees are informed of the various steps, as well as the fact that UCAR offers training and individual coaching around these issues. From an informal survey of working group members, however, it appears that employees who have been with UCAR for an extensive length of time are generally unfamiliar with the policy or the options available for problem resolution at UCAR in general. In addition, only 44% of the respondents to the Workplace Climate Survey were aware of the process and protocol outlined in the Problem Resolution policies and procedures.

Desired State:
Employees would feel that they have sufficient resources available to resolve issues.

Recommendations:
There are quite a number of resources already available to employees around problem resolution. The main issues are whether employees know that these resources exist and are they comfortable using these as a resource to assist in problem resolution. A communication program to increase employee awareness should be developed, as well as additional training for employees around problem resolution. Avenues for problem resolution such as the Ombuds program should be monitored for effectiveness.

C. Distribution of Staff

Current Status:
Staff are currently distributed across four campuses, with a fifth on the horizon once the Wyoming computing facility is completed. Distributed staff can result in decreased face-to-face communications and reduced participation in meetings and seminars. This can also lead to a sense of isolation and lack of identification with overall NCAR/UCAR strategies, decreased productivity and delayed progression on specific projects, as well as lost opportunities for the development of new ideas across divisions, labs and disciplines. Recent discussions suggest that in order for NCAR to be able to tackle the significant scientific challenges, such as Earth System modeling, it will need to be able to tap into staff expertise across divisions and labs. The current distribution of staff across campuses does not optimally allow staff to work on these major projects as an effective team. The current number of meeting rooms at the Mesa Lab is sub-
optimal for the likely number of meetings needed to support such activities in the future. The meeting rooms at other facilities, such as Foothills, are also heavily used.

**Desired State:**
Recognizing that UCAR is unable to co-locate all staff, we understand and act on the need to maximize communication options between campuses. This includes providing conference/meeting rooms that can be linked to other campuses seamlessly, and without the need for Audio Visual staff involvement. UCAR has a culture where these options are widely used and accepted as viable mechanisms to offset issues arising from distributed staff. Wikis and other electronic mechanisms for communication are already being used, but should be optimized for NCAR needs.

Opportunities for team interactions should also be optimized. This can take the form of more face-to-face meetings, conference rooms that are linked to other campuses seamlessly, and opportunities for extended interactions. Most of these options will require additional and improved meeting space.

All seminars held at any campus should be broadcast to a designated video seminar room at each campus that allows for interaction with the speaker. This will allow scientists and staff to keep up to speed with the science and discussions with minimal time lost due to travel between campuses.

Collaborative office space should be available at all campuses in order to allow staff to work at other facilities for a period. This would be particularly relevant for scientists that are collaborating on a project/paper, or team members that need to be co-located for a period of time. This could be for as short as one day, to as long as a few months if needed by the project/collaboration.

**Recommendations:**
- Upgrade a number of meeting rooms at each campus to include conference capability. This is similar to a proposal put forward by the library committee led by Mary Marlino.
- Designate at least one video seminar room per campus that will display seminars presented at other facilities.
- Allocate offices at each campus to facilitate improved interaction/collaboration among staff.
- Increase the number of meeting rooms at all facilities where feasible.
- Educate employees on the availability/use of web based conferencing tools that can be used in their respective offices for meetings of small groups of distributed staff.