FACULTY SENATE AGENDA MATERIALS
for
3 February 2014

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MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS EDWARD BALISH

Emeritus Professor Edward (Ed) Balish died on September 13th, 2013 in Charleston, South Carolina. Ed was born in 1935 in Scranton, PA. He played football as a lineman in high school and at the University of Scranton and was invited to try out with the Green Bay Packers but instead entered graduate school to study microbiology at Syracuse University. It was there that he began the two themes that characterized much of his scientific career: the use of gnotobiotic (germ free) animals to study the effects of the microbiome and investigations of the pathogenesis of the opportunistic fungal pathogen Candida albicans. Following completion of his Ph.D. in 1959, he undertook postdoctoral training in radiation biology at Argonne National Laboratory. He then accepted a position as Scientist at Oak Ridge National Laboratory, where he remained until 1969.

Ed then moved to the University of Wisconsin-Madison where he was offered a joint appointment in the Department of Medical Microbiology and the Department of Surgery in the School of Medicine. Ed rose through the academic ranks and was promoted to Professor in 1976. He served as the acting Chair of Medical Microbiology for two years (1988-1990), easing the transition between the chairmanship of the late Professor Duard Walker and Professor William Weidanz. Ed retired from the University of Wisconsin-Madison in 2001. He and his wife, Marion moved to Charleston, South Carolina to enjoy their Golden years. However, Ed could not stay away from the laboratory and secured a faculty position at the Medical University of South Carolina, where he continued to carry out productive NIH-funded research until 2012 when he fully retired.

Ed was a big-picture scientist. His contributions are broad in scope and considerable significance. He authored more than 230 scientific papers, on various bacterial and fungal organisms, that have been cited more than 7,000 times in the literature. He was most widely known for his use of germ-free (gnotobiotic) animals to study how the microbial flora that we all possess can be beneficial or detrimental to their host. Ed was clearly ahead of his time in this endeavor as evident in the current growth of research on the microbiome and microbial symbiosis, and the general interest of the public in probiotics. Ed’s enthusiasm for the subject was reflected in his leadership in the American Society for Gnotobiotics, which he served as President and in other important leadership positions during his career. Ed established what was to become one of the largest gnotobiotic laboratories in the world on the west end of Williamson Street in Madison. When Ed gave tours of the facility, he would point out what he claimed was one of the world’s largest autoclaves, in which you could sterilize a Volkswagen if need be!

Ed contributed much to the campus instructional program in microbiology. He taught medical mycology to undergraduate and graduate students for many years. But Ed’s greatest educational impact was as a mentor. He served as the major professor for 20 Ph.D. and M.S. students and mentor of several postdoctoral trainees who went on to success in academia, industry and government service. Ed gave his students the freedom to follow their own ideas and develop truly independent projects. As one of his former students states, “Ed was a one in a million and deserves every accolade possible.”

Ed and his wife Marion wed in 1961. They spent 43 happy years together until her death in 2004. Together they raised three sons: Christopher, Marty and Stan. Time spent with his family was always a high priority for Ed. Together they enjoyed many vacations, fishing expeditions, ski trips and golf outings. Ed was thrilled to shoot a hole in one while golfing with his sons just months before his death.

Ed was an eternal optimist, encouraging even when a project seemed to be going nowhere. His enthusiasm and positive outlook were unshakable. Ed always treated everyone with kindness and humor, whether they
were a colleague, student or support staff. Ed also was a great role model for his students: he was a successful scientist and faculty member who maintained balance in his life. He made time for family and friends, and for other important activities (like fishing and golf), and kept physically active throughout his life. For many years, Ed was a regular jogger along the campus paths. Later he participated in exercise classes held at the Camp Randall Recreation Center.

Ed was a generous collaborator and an outstanding colleague. Those who knew him feel fortunate to have called him a mentor, colleague and friend. He will be missed by all who knew him.

MEMORIAL COMMITTEE
Curtis Brandt
Gerald Byrne (University of Tennessee)
Chuck Czuprynski, chair
Rod Welch
MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF ASSISTANT PROFESSOR EMERITA MARGUERITE CHRISTENSEN

Marguerite (Marge) Christensen, assistant professor emerita of the General Library System and former head of Memorial Library Reference, died on May 6, 2008 at Oakwood Village in Madison. She was 90 years old.

Marge, as she was widely known, enjoyed a childhood unusual by today’s standards. Born on August 24, 1917 at Trout Lake in Vilas County, she grew up in the heart of Wisconsin’s Northwoods. Her father was a forestry manager, and the family lived in what was known as the “State House,” a beautiful, 23-room log dwelling near the lake, where visitors included governors of Wisconsin and Illinois, state agency heads, game wardens, fishing guides and logging crews. In his 2005 book, Northwoods Life: Growing up at the State House, her brother John describes a spacious dining room that hosted scientists such as Edward Birge, Chancey Juday and Aldo Leopold. Winters were spent on snowshoes, summers skinny-dipping in area lakes. Teams of draft horses hauled logs for heating and chunks of lake ice in winter to be stored in sawdust for refrigerating food. Wolves, deer and bear roamed the wooded expanse.

Like many country children, she left for the city. After attending high school in Minocqua, Marge earned bachelor’s and library science degrees at the University of Wisconsin in Madison. In 1939 she started her career at the Bloomer Public Library in Bloomer, Wisconsin, subsequently working at the State Teachers’ College in Superior and Carroll College in Waukesha before returning to Madison in 1945 as a member of the UW Library reference department. At that time the library was still in the old State Historical Society building, and she was one of just three people in the reference room. After the library’s collections were moved to the new Memorial Library in 1953, she served as head of inter-library loans and assistant reference librarian until, in 1967, she was appointed head of the reference department, a position she held until her retirement in December 1982.

During Marge’s tenure, the department’s collections, physical space and personnel underwent a huge increase, and by the mid-1970s electronic research services arrived on the scene. She facilitated this development by hiring the first librarians trained to assist students and faculty with searches of computerized databases and led the department through a time of considerable relearning, as the tools of research were transitioning from a print-based environment to one increasingly dominated by computers, always maintaining a calm, down-to-earth devotion to her work and an impish sense of humor. Her knowledge of reference sources and current issues was held in high regard by faculty, students and staff alike.

Though a Madisonian for much of her life, Marge never forgot her Northwoods roots. She loved telling stories about her childhood and waxed nostalgic at the call of the loon. For years she maintained a cottage in Woodruff, which she eventually sold for an expansion of the Howard Young Medical Center. She was a faithful member of the Civics Club and after her retirement remained an avid bird watcher and promoter of environmental causes, as witnessed by her support of groups such as the Audubon Society, Nature Conservancy, and Northwoods Land Trust. She was preceded in death by her parents and her brother John A. Christensen in 2003. She was survived by cousins and her sister-in-law Dorothea Christensen of Sault Ste. Marie, Michigan, who died in 2011.

MEMORIAL COMMITTEE
Elizabeth Breed
Willa Schmidt, chair
MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS RICHARD F. FENSKE

Richard F. (Dick) Fenske, Professor Emeritus of Chemistry, died at the age of 82 on December 14, 2011 in Las Vegas, Nevada. Dick was born May 23, 1929, in Milwaukee, as one of 10 children to Bernard and Mary Fenske. After receiving his B.S. degree from Marquette University in 1952, he worked for several years at the Oak Ridge Atomic Energy Facility and the Army Chemical Center. He returned to graduate school in 1957 and received his Ph.D. from Iowa State University in 1961. Immediately upon completing his Ph.D. degree, Dick started his independent academic career at the University of Wisconsin-Madison in 1961.

Dick was an internationally-renowned pioneer in the application of molecular orbital theory and quantum mechanical methods to the study of inorganic and organometallic species. Transition metal containing compounds pose substantial challenges to computational quantum chemistry because of both the number of atoms and the number of electrons. Dick’s insight into the solution of complex integrals, as well as chemically justifiable approximations in the quantum mechanical treatment of electronic structure, led Dick and his students to develop a powerful treatment of molecular orbital theory that became known as the ‘Fenske-Hall’ method. For a period of 40 years, Fenske-Hall and Extended Hückel theories served as the dominant means of analyzing and interpreting electronic structure in the field of inorganic chemistry. Dick’s Ph.D. students from Wisconsin pursued their own distinguished careers in academia and industry.

Dick served as Chair of the Chemistry Department (1972-1977) and Associate Dean in the College of Letters and Science (1978-1982). He was known as a creative and enthusiastic teacher and earned many awards for his teaching style, including the Steiger Teaching Award – a University-wide award – in 1967. Dick retired from the faculty in 1989 and moved to Las Vegas, where the reliably sunny weather conditions benefitted his family. In the early years of his retirement, Dick returned to Madison during the summer to continue his masterful teaching of introductory chemistry courses. Although his first loves were his family and teaching, Dick also enjoyed travel, piloting, poker, and golf. In addition, he was a deeply spiritual man who was involved in his church and appreciated music, photography and art.

He is survived by his loving wife of 60 years, Francesca Mary (Fran) Fenske; children, Marybeth (Peter) Geissler of De Pere, Rick (Vickie) Fenske of Neenah, and John Fenske of Las Vegas; grandchildren, Richard, Rebecka and Jacob Fenske, Sarah, Rachel, Jonathan, and David Geissler and Alexia Shurmur; siblings, Mary Bechmann and Robert Fenske; and numerous nieces and nephews. He was predeceased by his son, Joseph Fenske.

MEMORIAL COMMITTEE
Bruce E. Bursten (University of Tennessee)
Lawrence F. Dahl
Donald F. Gaines
Robert J. McMahon, chair
MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS THEODORE S. HAMEROW


Ted Hamerow was born in Warsaw, Poland, in 1920. His parents were actors in the great Yiddish Vilna Troupe. When his parents immigrated to the United States in 1925, Ted remained with his grandparents in Poland and Germany before himself coming to New York in 1930.

Ted was educated in the city’s public schools and graduated from the City College of New York in 1942. He served in the U.S. Army in Europe from 1943 to 1946 in the infantry and then as a translator for the military police. After the war he earned a master’s degree at Columbia in 1947. Ted was then accepted into Hajo Holborn’s stellar program in modern German history at Yale, where he earned his Ph.D. in 1951.

Ted’s first jobs were brief stints at Wellesley and the University of Maryland’s program in Germany. In 1952 he joined the faculty of the University of Illinois in Champaign-Urbana, where he taught until 1958. In the mid-to-late 1950s, the UW History Department was making a major effort to strengthen its European area. In 1956 it hired George Mosse, and two years later it hired Ted Hamerow. Ted’s career at Wisconsin was stellar. He directed one of the largest doctoral programs in modern German history in the United States. He was also a compelling undergraduate teacher, with a style all his own. Ted did not use detailed lecture notes or maintain precisely the same lectures year after year. Instead, he prepared only a very brief outline for each lecture, which he then tore up once class was over.

In addition to being a fine teacher at the graduate and undergraduate levels, Ted was a remarkably productive scholar, publishing extensively as a specialist in the era of the unification of Germany. He was particularly interested in the study of social and economic forces and in fact was a pioneer in these areas. His first book was *Restoration, Revolution, Reaction: Economics and Politics in Germany, 1815–1871* (1958), followed by the two-volume *Social Foundations of German Unification, 1858–1871* (1969, 1972), which solidified his reputation as a scholar of the first order. He went on to produce a total of ten works in eleven volumes, as well as co-authoring a textbook, and publishing four other edited or co-edited books. His interests extended beyond Imperial Germany. In *Reflections on History and Historians* (1987) Ted analyzed the current structure and problems of the historical profession and the declining place of history in culture and education, and he proposed several reforms. His 1990 book, *From the Finland Station: The Graying of Revolution in the Twentieth Century*, was a comparative analysis of the revolutionary process in Russia, China, Cuba, and Vietnam.

Retirement little diminished the pace of his research and publication. Among the notable books that he published after his teaching career ended was *On the Road to the Wolf’s Lair: German Resistance to Hitler* (1997), which focused on the conservative opposition to Hitler. At the age of 88 Ted brought forth *Why We Watched: Europe, America, and the Holocaust* (2008), a new examination, based extensively on primary research, of the policies and attitudes of Allied governments and institutions during the Holocaust. He also published a memoir of his earliest years, *Remembering a Vanished World: A Jewish Childhood in Interwar Poland* (2001).

Ted was active in service to the profession and in public service, among other things as chair of the Modern European History Association of the AHA in 1978 and later as a member of the Council of the National Endowment for the Humanities from 1992 to 2008. He was the founding president of the Wisconsin
Association of Scholars and was also one of the founders of The Historical Society, which makes an award annually in his name for the best dissertation in European history.

Ted was a firm and passionate believer in free speech and in maintaining fair and objective standards, and he believed that historians had the responsibility to carry out new research and speak the truth, as they saw it, irrespective of current fads or politics. He had the courage to speak eloquently, passionately, and forthrightly on behalf of his principles, if need be as part of a small minority.

Ted is survived by his wife, Diane, two daughters, two stepsons, two grandchildren, and five step-grandchildren.

MEMORIAL COMMITTEE
James S. Donnelly
Richard Leffler
Stanley G. Payne
MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS MINORU KIYOTA

Professor Emeritus Minoru (Min) Kiyota died at the age of 89 on August 27, 2013 in Madison, Wisconsin. His passing signified the end of a long and distinguished career in research, teaching and service to the University of Wisconsin-Madison which began in 1962 and spanned a period of more than three decades.

Minoru ("Min") Kiyota was born on October 12, 1923 in Seattle, Washington and grew up in San Francisco, California and Hiratsuka, Japan, where he lived from 1934 to 1938.

While merely a high-school student, he was interned as an American-born but Japan-educated offspring of Japanese parents (kibei) in relocation centers in Tanforan, Topaz, and Tule Lake in 1942 during World War II. In his autobiographical account, Beyond Loyalty: The Story of a Kibei (1997), and in a chapter in his edited volume, The Case of Japanese Americans During World War II: Suppression of Civil Liberty (2004), he described his experiences during this difficult period of his life.

After his release from Tule Lake Segregation Center in 1946, he accepted a scholarship to the College of the Ozarks in Arkansas and later transferred to the University of California at Berkeley, where he received his B.A. in East Asian Languages and History in 1949. Min attended the San Francisco Theological Seminary from 1949 to 1950 and worked as a civilian employee of the U.S. Air Force Intelligence Service in Japan and Korea from 1950 to 1953 during the Korean War. He continued to stay in East Asia, attending Tokyo University in Tokyo, Japan from 1953 to 1962, where received his M.A. in 1958 and completed his Ph.D. in Buddhist Studies in 1963.

In 1962 Min joined the Department of Indian Studies (later renamed the Department of South Asian Studies and currently designated as the Department of Languages and Cultures of Asia - LCA) of the University of Wisconsin-Madison as an Assistant Professor. He was promoted to Associate Professor with a joint appointment with the Department of East Asian Languages and Literature in 1968. In 1978 he rose to the rank of Professor.

Min's research interests were wide-ranging but his main area of teaching and scholarship was Mahāyāna Buddhism in East Asia. He emphasized textual research, requiring rigorous training in Sanskrit, Chinese and Japanese. In 1989 Min also started teaching Kendō (a Japanese martial art, which descended from traditional swordsmanship) as a Senior Lecturer in the Department of Kinesiology. His "Kendo: An Integration of Martial and Liberal Arts," cross-listed with the Department of East Asian Languages and Literature and the Department of Languages and Cultures of Asia, was the first and only course of its kind taught in a university setting in the USA. Min used his Kendō class to teach Zen Buddhism as the philosophical foundation of Kendō. He stressed the importance of Kendō as a way to overcome fear, to develop one-pointed concentration (for better study habits), to grow personally, and to understand different cultural perspectives on life.

During the course of his employment at UW-Madison Min published twelve books, numerous articles and book chapters and supervised thirty-two Ph.D. students, a great number of whom found positions at colleges and major universities in the United States, Japan, Korea, Taiwan and Vietnam.

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Min represented a generation which had witnessed the tragedy of the Pacific War. That tragedy prompted him to study and teach Buddhism in order to bring about an understanding of Asian culture among American students and to preserve peace in the Pacific. Thus he organized three U.S.-Japan Conferences, which focused on Buddhism or Martial Arts, in 1985, 1989 and 1996.

During his academic career Min received numerous prestigious grants, including three Fulbright-Hays Faculty Research Grants and two Japan Foundation Grants for research in Japan.

Min chaired the Buddhist Studies Program for many years and contributed considerably to enhancing its success and visibility both nationally and internationally. His "Introduction to Buddhism" course and his Kendō classes drew large enrollments. In 1990 Min received the felicitation volume titled *Buddha Nature: A Festschrift in Honor of Minoru Kiyota* in recognition of his work.

Min retired as a Professor Emeritus in 1999 but continued to teach Kendō, first as a Senior Lecturer in the Department of Kinesiology of the University of Wisconsin-Madison and as Professor Emeritus from 2006 to 2008. During this time he also served as a faculty adviser to UW's Kendō Club.

Min is survived by his wife, Noriko, their two daughters Noreen and Eileen, and three grandchildren, Karina, Larisa and Randy.

**MEMORIAL COMMITTEE**
Gudrun Bühnemann, chair
J. Mark Kenoyer
Naomi McGloin
MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS PAUL O. MADSEN

Dr. Paul O. Madsen, Professor Emeritus in the Department of Urology at the University of Wisconsin School of Medicine and Public Health, died on November 4, 2013 at the age 86 from cancer of the prostate, a disease for which he treated hundreds of patients.

Paul Madsen was born to Poul Gerhard and Anna Marie Madsen on a farm in a small Danish village. The first from his family to go to college, he obtained his MD degree from the University of Copenhagen, Denmark. He then studied at the University of Rochester, NY as a Fulbright Fellow. Thereafter, an Alexander von Humboldt fellowship took him to the University of Heidelberg, Germany where he met his wife Renate. He completed his residency in Urology at the University of Buffalo, NY, interrupted by a two-year service commitment in the US Army Medical Corps in Nürnberg, Germany.

The couple looked for opportunity and came to Madison, where over three decades at the University of Wisconsin his career flourished. He eventually became Professor of Urology and Chief of Urology at the William S. Middleton Veterans Hospital. Renate, an anesthesiologist, also joined the medical school faculty and UW Hospital staff in 1962. Dr. Madsen was an active surgeon and researcher for more than three decades, publishing over 300 scientific papers and numerous textbook chapters in Urology. He was especially recognized for his early groundbreaking work on prostate cancer and the treatment of benign prostatic hyperplasia.

During his tenure at the University of Wisconsin, he was especially active in mentoring dozens of Urology residents as well as research physician-fellows from Denmark, Germany and Switzerland. Many of these individuals went on to have successful research and academic careers. He had a notable interest in his native country and trained over 24 Danish physician-fellows and initiated, with the local faculty in Copenhagen, an annual urological course at the University of Copenhagen. For these contributions to medicine, Denmark’s Queen Margrethe made him a Knight of the Order of Dannebrog, one of the two Danish royal orders of chivalry.

Ever loyal to his Danish heritage, Dr. Madsen donated generously to the University of Wisconsin Madison to assure continuance of Scandinavian Studies there, endowing the Paul and Renate Madsen Professorship in Danish.

Dr. Madsen had innumerable interests, foremost among them his family, friends, nature and music. He was an avid naturalist and planted more than one hundred thousand trees on his farmland. In his younger days, he was an accomplished classical pianist.

He was a mentor to many and left behind a large imprint on the field of Urology nationally and internationally. Those closest to him remember him as dignified, generous, optimistic and loving. He is survived by his wife of 58 years, Dr. Renate Madsen, their three children, eleven grandchildren and many friends.

MEMORIAL COMMITTEE
MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS GERALD MARWELL

Gerald Marwell, Richard T. Ely Professor Emeritus of sociology at the University of Wisconsin-Madison, died on March 24, 2013 in New York City. He was 76.

Marwell was one of the most distinguished and creative sociologists of his time. Primarily a theorist and social psychologist, his most influential work was theory and experiments concerning the “problem of collective action.” His experiments in the late 1970s set the stage for the emergence of widespread interest within Economics for experiments on the provision of public goods. With Pamela Oliver, he developed the “Theory of the Critical Mass,” using simulations as well as formal theory, and refocusing discussion of cooperation within large groups. But his wide-ranging interests were reflected in major articles and books on other topics as diverse as self-esteem, partisan voting in Congress, juvenile delinquency, student volunteers in the Civil Rights Movement, role relationships, gender differences, and religious participation. His unusual breadth also led Marwell to be asked to give special service to the profession, most importantly through his four-year service as editor of the American Sociological Review, the flagship journal of the American Sociological Association.

During his forty years at UW-Madison, Marwell contributed greatly to campus life. He served on many important College and University Committees (including an unusual four-year stint on the Graduate Research Committee, and the first Human Subjects Committee) and provided inestimable service to his own beloved Department of Sociology, which he helped build into a national powerhouse. There, along with service on countless committees, he served several years as Chair, several more as Director of Graduate Studies, and was a bedrock voice of reason, civility, and conscience and good cheer in all of its varied business. Marwell also taught, more or less constantly, through courses and conversation. He introduced the study of sociology to several thousands of undergraduates (and, when his courses were broadcast by PBS, untold numbers of others). He trained hundreds of graduate students, many now leaders in the profession. And he mentored dozens of younger faculty.

He shall be remembered always as a brilliant scholar and a friendly, demanding, kind, and indefatigable teacher and colleague.

MEMORIAL COMMITTEE
Pamela Oliver, chair
Joel Rogers
Erik Olin Wight
MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF PROFESSOR EMERITUS AVADH KISHORE NARAIN

Avadh Kishore Narain, an internationally renowned historian, archaeologist, numismatist, and authority on Buddhism in ancient India and Central Asia, passed away on the 10 July 2013, at his home in Varanasi, Bihar, India. During a long and distinguished academic career, he shaped the study of Indo-Greeks around the world, attracting, influencing, and mentoring generations of scholars and forging life-long scholarly linkages and personal friendships with scholars on several continents. His later research, focused on peoples of Central Asia who followed the Yavanas (Indo-Greeks), especially on the Indo-Sythians (Sakas), Indo-Parthians, and the Yue-Zhi or Kushanas during the reign of Kanishka, was path-breaking, both empirically and conceptually, providing new ideas for current and future research.

Narain was born in 1925 in Gaya, Bihar – near Bodh-Gaya, the birthplace of Buddhist Enlightenment – and grew up on Sarnath and Varanasi, about 160 miles east, where he spent most of his adult life. In 1947, he was awarded his first Post-Graduate Degree in Ancient Indian History, Culture, and Archaeology by Banaras Hindu University (BHU), securing the first of the University and Dayaram Sahni Gold Medal. In 1954, he completed his Ph.D. at the School of Oriental and African Studies (SOAS), University of London, under the direction of A. L. Basham. His most famous work, The Indo-Greeks (OUP, 1957), challenged ideas of Sir William W. Tarn (d. 1957). His long association with his alma mater in Varanasi continued for the rest of his life. He held the Manindra Chandra Nandi Chair of Ancient Indian History & Culture (AIHC) & Archaeology at BHU; became Head of the Department of AIHC&A; Principal of the College of Indology; Dean, Faculty of Arts; and Director of Archaeological Excavations and Explorations. He also had visiting research fellowships and professorships at, SOAS, London; Macalaster College, MN; Visvabharati, Shantiniketan, W. Bengal; the Institute of Advanced Study, Princeton; the Institute for Research in the Humanities, UW-Madison; Columbia University and New York University. Other awards and honors included the Holkar Fellowship; the Chakravikrama Gold Medal; Campbell Gold Medal for Life Time Achievements in Ancient History; grants from the Ford, Guggenheim, and Rockefeller Foundation; elections as Life Fellow of Royal Numismatic Society, Honorary Fellow of the Royal Asiatic Society of Great Britain and Ireland, and Honorary Member of the International Association of Buddhist Studies.

A.K. Narain’s earliest connection with UW came in 1964, with his help, collaboration and sponsorship of the UW College-Year-In-India at BHU, Varanasi. In 1971, he was appointed Professor of History & South Asian Studies at the University of Wisconsin-Madison. During the next seventeen years, he inspired and trained generations of graduate students, many of whom themselves went on to occupy professorships in prestigious universities. He also served as Chair of the Buddhist Studies Program at the University of Wisconsin-Madison. After taking early retirement in 1988, he was made Professor Emeritus of History and of Languages and Cultures.

Returning to Varanasi, Professor Narain founded and served as first director of the Bikkhu J. Kashyap Institute of Buddhist and Asian Studies at BHU. Among manifold contributions to organizing research his field throughout the world, he became editor, or founder-editor, of seven academic journals: (1) Bharati: Research Bulletin of the College of Indology (BHU); (2) Puratattva: Bulletin of the Archaeological Society of India (which he founded); (3) Journal of the International Association of Buddhist Studies (which he co-founded); (4) Journal of Indian Buddhist Studies; (5) The Indian Journal of Asian Studies; (6) Asia Prashant: Journal of the Indian Congress of Asian and Pacific Studies); and (7) The Indian International Journal of Buddhist Studies. During his last years, he was engaged in work on his most ambitious project: Kurush to Kanishka – A Millennium of Early History of Asia without Nation-State Boundaries: Movements and Interactions of Peoples, Ideas, and Institutions. Some volumes of documentary history in this project are

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complete and at various stages in the publication process. He strongly believed in “connected histories” and his writings all exhibit a marked tendency toward a focus that blend elements both Indian and non-Indian.

During his long academic career, Professor A. K. Narain’s knowledge and scholarly expertise left an imprint both deep and wide. His influence on scholars and students was such that some have banded together to produce two commemorative volumes. The first, a special 2014 issue of the Indian Journal of Buddhist Studies, is being organized and edited by Dr. Roger Jackson, John W. Nason Professor of Asian Studies & Religion, Carleton College, MN, and Dr. Lalji ‘Shravik’, Professor of Pali & Buddhist Studies, Banaras Hindu University, Varanasi. The second volume reflects Professor Narain’s interest on “India and the ‘Other’” (scheduled for 2015), is being produced by Dr. Kamal Sheel, Professor of Chinese Studies a BHU; Dr. Charles Willemen, Professor and Distinguished Fellow of the Belgian Royal Academy of Overseas Sciences and (currently) Vice-Rector of the International Buddhist College, Sogkhla, Thailand; and Dr. Kenneth Zysk, Professor and Head of Indology, University of Copenhagen, Denmark.

Preceded in death by his first wife, Sudha, who passed away early, his parents, and four sisters, A.K. Narain is survived by his second wife, Usha, two sisters, five children and nine grandchildren: (1) son Kamal Sheel (at BHU, Varanasi), Kamal’s wife Ranjana Sheel, and grandchildren Siddhath Sheel and Aditi Sheel; (2) daughter Madhu Saxena Madhu Saxena (Atlanta, Georgia), Madhu’s husband Ashok Saxena (Univ. of Arkansas) and grandchildren Rahul Saxena and Anjali Saxena; (3) Anand Sheel (Saratoga, CA), Anand’s wife Vandana Sheel, and grandchildren Sonali, Nikhil, and Shreya; (4) daughter Madhunanda Prasad (San Jose, CA), her late husband Madhurendra Prasad and grandchild Ruchi Prasad; (5) daughter Madhukanta Kumar (New York City), her husband Birendra Kumar, and A.K.’s grandchild Gautam Kumar.

MEMORIAL COMMITTEE
MEMORIAL RESOLUTION OF THE FACULTY OF THE UNIVERSITY OF WISCONSIN-MADISON

ON THE DEATH OF ASSISTANT PROFESSOR EMERITA H. JEAN ROWLEY

H. Jean Werderitsch Rowley, the retired chief of cataloging for UW-Madison libraries, passed away on April 22, 2010 at the age of 83.

Jean was born in Milwaukee on March 23, 1927. She grew up and attended schools in southwestern Wisconsin and in Poughkeepsie, New York. Jean earned a Bachelor of Arts degree in French and German in 1948 and a Master of Arts degree in library science in 1951 from UW-Madison.

During her time in the UW Library School, she worked for the UW Library, which then shared space with the Wisconsin Historical Society building. Following her graduate work, she served as an Army librarian in France and Germany for three years. Upon her return to the U.S., she worked for two semesters at the Iowa State College Library in Ames. She returned to Madison in 1955 and began eight years as base librarian with the Air Force, serving at three bases in the U.S. After leaving the Air Force, she married L. Ben Rowley shortly before she rejoined UW in 1963 as a serials cataloger in Memorial Library. In 1973 she was appointed chief of cataloging.

Her career in cataloging spanned the progression from individually typed 3"x5" catalog cards on manual typewriters to cards typed by IBM Selectric typewriters driven by punched tapes, to the early days of cooperative cataloging through shared on-line cataloging, and finally to the early days of MadCat, the online catalog for the UW-Madison campus. She also oversaw the transition to and the training of staff on new national cataloging rules and standards (Anglo-American Cataloging Rules, second edition; most commonly known as AACR2), which were in place until just this year when the national rules changed again.

Jean retired in 1990 from the UW General Library System, after 27 years as a highly esteemed university librarian.

In retirement, Jean was an active volunteer, translating books into Braille and other services to the blind, as well as regularly delivering meals on wheels for Independent Living.

With her husband, she enjoyed road trips in their truck and fifth-wheel camper. Jean traveled on all seven continents, particularly enjoying mountains, forests and ice fields. She supported the arts and especially valued subscription concerts at Chicago’s Lyric Opera. Throughout her life she was devoted to the welfare of wild animals and to the pet cats of friends and of her own.

Jean’s husband and her parents, George and Ethel (Smith) Werderitsch, predeceased her. She is fondly remembered by many friends and colleagues.

MEMORIAL COMMITTEE
Gene L. Dewey
Richard Reeb
Irene Zimmerman, chair
FACULTY SENATE MEETING
Monday, 2 December 2013 - 3:30 p.m.
272 Bascom Hall

MINUTES

The meeting was called to order by Chancellor Rebecca Blank at 3:33 p.m. with 157 voting members present.

1. Memorial resolutions were presented for:

   Doc. No.
   Professor Emeritus John J. Boll 2453
   Professor Emeritus Lawrence L. Thomas 2454
   Professor Emeritus Howard E. Zimmerman 2455

2. Announcements/Informational Items.

Chancellor Blank noted that detailed information about the critical compensation fund was sent to schools and colleges in November, and at least 50% of funds must be given to individuals who did not receive an increase through the first round of the critical compensation fund.

Chancellor Blank noted that Vice Chancellor for Research and Dean of the Graduate School Martin Cadwallader has indicated that he plans to step down at the end of the current academic year. Chancellor Blank and Professor Michael Bernard-Donals, chair of the University Committee, announced that a working group on leadership changes in the Office of the Vice Chancellor for Research/Dean of the Graduate School is being formed, with a report requested by February 15, 2014.

3. Question Period.

There were no questions.

AUTOMATIC CONSENT BUSINESS

4. The minutes of 4 November 2013 were approved as distributed.

REPORTS


There were no questions or comments.


There were several questions.
UNFINISHED BUSINESS

7. Professor Bernard-Donals moved to adopt the University Committee Recommendation to Amend *Faculty Policies and Procedures* 4.20., 4.32., 4.40. and 5.31. Regarding Processes for Approving, Modifying and Discontinuing Courses; and to Amend Chapter 6 to Create the University Curriculum Committee.

The motion passed without negative vote.

NEW BUSINESS

8. Dean Robert N. Golden presented for discussion the Recommendation to Create the Department of Emergency Medicine in the School of Medicine and Public Health.

9. Chancellor Blank presented a resolution of thanks, which passed without negative vote. Resolved: That the Faculty Senate expresses its appreciation to Andrea Poehling for her excellent work as secretary of the faculty; and that the Faculty Senate also expresses appreciation to Joe Farrenkopf for his excellent work as administrative program specialist in the Office of the Secretary of the Faculty.

The meeting adjourned at 4:35 p.m.

Andrea Poehling
Secretary of the Faculty
CAMPUS PLANNING COMMITTEE
ANNUAL REPORT FOR 2012-2013

I. STATEMENT OF COMMITTEE FUNCTION
The Campus Planning Committee is a joint governance committee established in conjunction with the faculty, academic staff and/or student government to address issues of common concern. It is composed of twenty-one members representing a variety of campus constituencies among them Divisional Committees, the University Committee, Academic Staff, Associated Students of Madison, and is chaired by the Provost. A list of 2012-13 membership is appended to this report.

The committee advises the Chancellor and Provost concerning issues affecting the physical facilities of the University, including long-range development planning, building and major remodeling priorities, site selection, circulation, land use and related planning matters.

Its main role is the formulation of the campus’ biennial capital budget and six year development plan. The committee is also consulted on campus building naming requests, art installations, and other policies affecting the physical development of the campus.

II. PAST YEAR’S ACTIVITIES
The Campus Planning Committee held five meetings during the 2012-13 academic year: two during the Fall of 2012 and three additional meetings in the Spring of 2013. Agendas, minutes, and links to various presentations made to the committee can be found at the CPC website.

In the fall semester, the committee was provided updates on the following campus initiatives:

Campus Master Plan: Gary Brown, Director of Campus Planning and Landscape Architecture outlined the goals of the 2005 Campus Master Plan. He updated the committee on the progress the campus had made since 2005 in implementing those goals, and highlighted building projects that had recently been completed, were in design, or construction.

Campus Design Guidelines: University Architect, Dan Okoli presented an update on the Campus Design Guidelines. He explained how the guidelines were developed and how the Campus Design Review Board was tasked with interpreting and applying the guidelines to projects being constructed on the campus. He also highlighted the Quarterly Report published by his office which details major construction projects on campus.

East Campus Gateway Project: Gary Brown gave a summary presentation on the East Campus Gateway project, an east campus corridor which includes new buildings and major renovations of interior and exterior spaces running along a corridor from the Kohl Center to the lakeshore. A highlight of this project is the renovation of the Memorial Union and its terrace, the rehabilitation of the lakeshore behind the Union, and the creation of Alumni Park immediately east of the Union.

Campus Transportation Changes: Patrick Kass, Director of Transportation Services, updated the committee on the implementation of various changes to parking and transit policies and procedures.

During the spring semester, the committee approved the following items:

(continued)
• The naming of the Animal Health and Biomedical Sciences Building as the Robert P. Hanson
Biomedical Sciences Laboratories, School of Veterinary Medicine;

• A request by the Wisconsin Union Directorate Art Committee to create a mountable mural in the
Humanities courtyard;

• The naming of the Lakeshore Residence Hall II as Aldo Leopold Residence Hall; and,

• The naming of the Biochemical Sciences Complex as the Hector F. DeLuca Biochemical Sciences
Complex, consisting of the following facilities:
  o Hector F. DeLuca Biochemistry Building (420 Henry Mall)
  o Hector F. DeLuca Biochemical Sciences Building (440 Henry Mall)
  o Hector F. DeLuca Biochemistry Laboratories (433 Babcock Drive)

• A tentative 2015-17 Capital Budget request which included the Chemistry Instructional Expansion
and Renovation project as its first priority and a south campus utility project as its second priority.
Neither of these projects had been funded in the 2013-15 capital budget request so by taking this
action, the committee guaranteed that they would be the campus’ highest priority projects for the
2015-17 capital budget exercise.

III. CURRENT AND FUTURE ISSUES
During the 2013-14 academic year, work will finalize the development of the 2015-21 Capital Development
Plan and 2015-17 capital budget request. Given the action above, the committee will focus on gift/grant and
program revenue funded project requests. The committee will also hear presentations from select schools
and colleges on their strategic facilities plans and longer term capital project proposals.

In 2014, the campus will also begin the process of updating its 2005 Campus Master Plan. As in the past, the
Campus Planning Committee will function as the steering committee for this process.

Finally, in the coming year, the CPC will remain engaged with issues affecting major building projects and
the campus physical environment.

IV. 2012-2013 COMMITTEE MEMBERSHIP

Chair
Provost Paul DeLuca

Divisional Committee Representatives
Derrick Buisch  Humanities
Robert McMahon  Physical Sciences
Simon Gilroy  Biological Sciences
David Weimer  Social Studies

University Committee Representatives
Linda Oakley
Ken Potter

(continued)
Environmental Representative
Stephen Ventura

Arboretum Committee Representative
Richard Straub

Chancellor’s Appointees
Robert Golden
Gary Sandefur
Katharyn VandenBosch

Academic Staff Representative (appointed annually)
Marwa Bassiouni

ASM Representative (appointed annually)
Kyle Schroeckenthaler
Javier Barbosa-Mireles (alternate)

Committee Representatives (non-voting, appointed annually)
Steve Rader, Recreational Sports Board
David Noyce, Campus Transportation Committee
Kelly Mallon, Committee on Women
John Pfotenhauer, Library Committee
Ivy Corfis, Information Technology Committee

Ex Officio
Connie Brachman, Space and Remodeling Policies Committee
Bill Elvey, Associate Vice Chancellor, Facilities Planning and Management

Staff
Teresa Adams, Facilities Planning and Management
LECTURES COMMITTEE
ANNUAL REPORT FOR 2012-2013

I. STATEMENT OF COMMITTEE FUNCTION
The Lectures Committee (www.secfac.wisc.edu/lectures/lectcomm/) considers requests for lectures of general interest that are not primarily supplementary to or extensions of programs of instruction provided by colleges, schools, or departments, recommends annually to the chancellor a budget for its activities, and exercises such control over the announcement of lectures as it deems necessary and desirable. It supports departments, academic programs and student organizations that bring distinguished lecturers to the UW-Madison campus. These university-wide lectures are intended to enrich the general intellectual and cultural life of the university community. The committee itself does not initiate lecture arrangements. Rather, it receives and acts on requests from eligible university groups that are interested in inviting outstanding speakers to the campus.

II. PAST YEAR'S ACTIVITIES
During the 2012–13 academic year, the committee received a total of 74 applications for lecture support, 70 of which were supported and one was cancelled. Three lecturers spoke on two different topics. Appendix A presents information for each supported lecture; lectures are listed chronologically by the lecture’s date.

The 70 supported applications drew a combined reported attendance of 6,014 persons, a decrease in attendance by 1,183 from 2011-12, and a mean of 81 attendees per supported application. Lectures were sponsored by a total of 63 different campus units. Lectures had 1-8 co-sponsoring units, in addition to the primary sponsor.

The committee’s total expenditures for the year were $66,308. Of this sum, $49,040 was paid directly to lecturers as honoraria and travel expenses, $16,123 was paid to sponsoring units to reimburse travel and per diem expenses, and $1,145 (2%) was paid for lecture administrative costs (i.e., student hourly, postage, printing and poster distribution).

The table below compares committee activity from the most recent five years. The number of applications received and supported was down from 2011-12. The mean reported lecture attendance was down from last year, too. The mean lecture cost remained at historical levels.

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of applications received</td>
<td>74</td>
<td>83</td>
<td>66</td>
<td>67</td>
<td>75</td>
</tr>
<tr>
<td>Number of applications supported</td>
<td>70</td>
<td>80</td>
<td>63</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>Mean reported lecture attendance</td>
<td>81</td>
<td>90</td>
<td>122</td>
<td>89</td>
<td>75</td>
</tr>
<tr>
<td>Number of different sponsoring units</td>
<td>63</td>
<td>61</td>
<td>52</td>
<td>56</td>
<td>62</td>
</tr>
<tr>
<td>Mean number of co-sponsoring units</td>
<td>3.6</td>
<td>2.9</td>
<td>2.8</td>
<td>3.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Mean lecture cost</td>
<td>$947</td>
<td>$1,048</td>
<td>$1,029</td>
<td>$927</td>
<td>$845</td>
</tr>
</tbody>
</table>

III. CURRENT ISSUES OR CONCERNS
The committee welcomes suggestions regarding use of the William K. Fitch Fund, which is available “to bring to Madison prominent business people to give lectures on the American free-enterprise system.” None of the committee’s supported lectures during 2012-13 met the criteria necessary to draw from this fund. Therefore, the William K. Fitch Fund continues to grow.

(continued)
IV. SUMMARY/RECOMMENDATIONS
The committee welcomes suggestions regarding use of the William K. Fitch Fund, which is available “to bring to Madison prominent business people to give lectures on the American free-enterprise system.” None of the committee’s supported lectures during 2012-13 met the criteria necessary to draw from this fund. Therefore, the William K. Fitch Fund continues to grow.

We gratefully acknowledge sources of financial support for university-wide lectures. For direct funding of lectures, the Anonymous Fund provided $18,303 and the Kemper K. Knapp Bequest provided $20,819. The Chancellor’s Office provided from the General University Fund $26,041 for direct funding of lectures and $1,145 for lecture administrative costs.

2012-13 Committee Membership
Susan Dibbell (Consultant)
Miles Epstein (Biological Sciences Division/Fall semester)
David Hildner, Chair (Arts and Humanities Division)
Jacklyn John (Academic Staff)
Max Lagally (Physical Sciences Division)
Elizabeth Larson (Social Studies Division)
Sunita Nadendla (Student)
Kathryn VandenBosch (Administration)

Appendix A
2012-13 Lectures by Sponsoring Unit

<table>
<thead>
<tr>
<th>Date</th>
<th>Sponsoring Unit, (# of co-sponsors)</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 7/7/2012</td>
<td>Liberal Studies and the Arts (2)</td>
<td>345</td>
</tr>
<tr>
<td>&quot;Early American Vocal Music&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawrence Bennett, Visiting Professor, Wabash College</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 8/7/2012</td>
<td>Center for Russia, East Europe, and Central Asia (2)</td>
<td>35</td>
</tr>
<tr>
<td>&quot;Uyghur Neighborhoods and Nationalisms in Kazakhstan&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sean Roberts, Associate Professor and Director, International Development Studies Program, George Washington University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 9/16/2012</td>
<td>South East Asian Sisters (1)</td>
<td>125</td>
</tr>
<tr>
<td>&quot;'Pilgrim Hill' - A film about rural isolation in Celtic Tiger era Ireland&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patrick Sutton, Guest Artist-in-Residence, Ireland</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
4. 9/17/2012 Human Development and Family Studies (7)  
"Media, Children, and the Childhood Obesity Crisis"  
Ellen Ann Wartella, Sheikh Hamad bin Khalifa Al-Thani Professor of Communication,  
Professor of Psychology, Northwestern University

5. 9/20/2012 McPherson Eye Research Institute (3)  
"Seeing in Depth"  
Christopher Tyler, Head, Smith-Kettlewell Brain Imaging Center,  
Smith-Kettlewell Eye Research Institute, San Francisco, CA

6. 9/20/2012 Wisconsin Ecology (7)  
"Observing global biodiversity in a time of change"  
David Schimel, Chief Science Officer, Principal Investigator,  
National Ecological Observatory Network

7. 9/21/2012 Wisconsin Ecology (7)  
"Observational constraints on the climate sensitivity of ecosystem carbon storage"  
David Schimel, Chief Science Officer, Principal Investigator,  
National Ecological Observatory Network

8. 9/28/2012 Medieval Studies (2)  
"Geoffrey Chaucer Hath a Blog: Humor, Html, and the Humanities"  
Brantley Bryant, Assistant Professor, Dept. of English, Sonoma State University

9. 9/28/2012 German Department (2)  
Michael Geisler, Professor and Vice President of Language Schools, Middlebury College

10. 9/28/2012 Botany (1)  
"New approaches for correlated light and 3D Electron Microscopy applied to MULTISCALE CHALLENGES: Bridging Gaps in Knowledge and Understanding."  
Mark Ellisman, Professor of Neurosciences and Bioengineering,  
Director Microscopy & Imaging, University of California, San Diego

11. 9/28/2012 Dance Department (1)  
"Where Patterns Collide - Math & Dance"  
Karl Schaffer, Co-Director of Dr. Schaffer & Mr. Stern Dance Ensemble & of Math Dance

12. 10/3/2012 History Department Program in Gender and Women's History (2)  
"Normal Life: Critical Trans Politics and the Limits of the Law"  
Dean Spade, Assistant Professor of Law, Seattle University

(continued)
13. 10/11/2012   Center for Russia, East Europe, and Central Asia (1) 50
"Russian Politics:  The Paradox of a Weak State"
Maria Mendras, Professor, Paris School of International Affairs, Sciences Po University, Paris, France

14. 10/11/2012   Comparative Literature & Folklore Studies (3) 50
"The Humanities Today:  Compared to What?"
Irene Santos, Professor of English, American Studies, and Feminist Studies, University of Coimbra, Portugal

15. 10/12/2012   Department of Slavic Languages (1) 42
"Poetics Today: Some Burning Issues"
Alexander Zholkovsky, Professor, Slavic Languages & Literature & Comparative Literature, University of Southern California-Santa Monica

16. 10/12/2012   Classics Graduate Forum (2) 50
"Transformation, Translation, and Transcendence: Ovid, Marvell, and Others"
Steven Hinds, Professor of Classics, University of Washington – Seattle

17. 10/12/2012   East Asian Languages and Literature (1) 89
"Building Leisure out of National Trauma:  Tourism and Consumption along the Korean Demilitarized Zone"
Suk-Young Kim, Associate Professor, UCLA - Santa Barbara

18. 10/25/2012   Economics Student Association (1) 200
"Economics Issues in the November Election"
Jeffery Liebman, Professor of Public Policy, Harvard University

19. 11/1/2012   Art History (2) 34
"The Medium is the Mirage"
Marget Long, Independent Artist, Old American Can Factory, Brooklyn, New York

20. 11/1/2012   Art History Grad Forum (3) 34
"The Art of the Queer Counterarchive"
Ann Cvetkovich, Professor of English, University of Texas at Austin

21. 11/1/2012   Department of Classics (2) 46
"Pindar and Cyrene"
Richard Neer, David B and Clara E Stern Professor, Department of Art History, University of Chicago

(continued)
22. 11/8/2012  Material Culture Program (2)  
"Humor in Cold Dead Type: Performing Artemus Ward's London Panorama Lecture in Print"
Jennifer Greenhill, Assistant Professor of Art History, 
North American Art and Visual Culture, University of Illinois at Urbana-Champaign

23. 11/10/2012  University of Wisconsin Press (1)  
"Transitions: Gender, Sexuality, and Judaism with Joy Ladin and Michael Lowenthal"
Michael Lowenthal, Author, Lesley University

24. 11/13/2012  Spanish & Portuguese (4)  
"Literature and the Question of Development in Mozambique"
Ungulani Ba Ka Khosa, Author, Mozambique

25. 11/14/2012  Center for Integrated Agricultural Systems (7)  
"Local Food as an Economic Recovery Strategy"
Kenneth Meter, President, Crossroads Resource Center, Minneapolis, Minnesota

26. 11/15/2012  Chazen Museum of Art (1)  
"'A Morbid Fear of Conventionalism': Rethinking the Victorian Landscape Watercolor"
Scott Wilcox, Chief Curator of Art Collections, Senior Curator of Prints and Drawings, 
Yale Center for British Art

27. 11/16/2012  Department of Agriculture & Applied Economics (4)  
"China's Food Security and Trade: Past Performance and Future Perspective"
Jikun Huang, Director & Professor, Center for Chinese Agricultural Policy, 
Chinese Academy of Sciences

28. 11/19/2012  Department of Biomedical Engineering (1)  
"The Consequences of Cell Promiscuity, or Whether Viruses Can Cause Cancer by Fusing Cells"
Yuri Lazebnik, Professor, Cold Spring Harbor Laboratory

29. 12/3/2012  Medical History and Bioethics (3)  
"Escaping Melodrama: The US STD Experiments in Guatemala and the Difficulties for an Historian"
Susan Reverby, Professor, Wellesley College

30. 12/6/2012  Department of Theatre and Drama (1)  
"Scenographic Activism and Aesthetics of Labor: Howard Bay and the Federal Theatre Project"
Christin Essin, Assistant Professor of Theatre, Vanderbilt University

31. 12/6/2012  Psychology Department (2)  
"Integrating New Findings into the Complementary Learning Systems Theory of Memory"
James McClelland, Luce Stern Professor in the Social Sciences, Stanford University

(continued)
32. 12/7/2012  School of Music (2)  
"Kurt Weill and the Art of Self-Borrowing"
Stephen Hinton, Avalon Foundation Professor in the Humanities, Stanford University

33. 12/7/2012  Center for SE Asian Studies (2)  
"Writing Modern Vietnam: From Singularity to Plurality"
Christopher Goscha, Associate Professor, Université du Québec à Montréal

34. 2/5/2013  Tibetan Student Association of Madison (2)  
"Self Immolation, the Changing Language of Protest in Tibet"
Tsering Shakya, Canada Research Chair in Religion and Contemporary Society in Asia, University of British Columbia

35. 2/7/2013  Mosse/Weinstein Center for Jewish Studies (1)  
"Strange Fruit: Bialik and Kishinev in the Spring of 1903"
Marcus Moseley, Associate Professor, Department of German and Center for Jewish Studies, Northwestern University

36. 2/8/2013  Department of the History of Science (2)  
"Visualizing Disease: Changing Perspectives in Pathological Iconography"
Domenico Bertolini Meli, Professor of History and Philosophy of Science, Indiana University

37. 2/13/2013  Second Language Acquisition (SLA) Graduate Student Organization (4)  
"Functional Grammar in Support of English Language Learners' Literacy Development in Elementary Grades"
Mary Schleppegrell, Professor, University of Michigan

38. 2/27/2013  International Institute (2)  
"Witchcraft, Intimacy and Trust - Africa in Comparison"
Peter Geschiere, Professor of Anthropology, Amsterdam School for Social Research

39. 2/28/2013  Department of History (3)  
"Racial Representation of the Worst Sort: Southern Rhodesia's 1957 Franchise Commission, Citizenship, and the Problem with Polygynous Wives"
Luise White, Professor of African History, University of Florida

40. 2/28/2013  Department of Anthropology (6)  
"(Re)Producing Human Evolution: Entangled anthropologies, cooperation, war, and peace In human beings"
Agustin Fuentes, Professor, University of Notre Dame

41. 3/1/2013  German and Dutch Graduate Student Association (3)  
"Evolution and the Architecture of Grammar"
Michael Putnam, Assistant Professor of German and Linguistics, Pennsylvania State University

(continued)
42. 3/4/2013  Department of Biomedical Engineering (1)
"MR-guided Interventions and Thermal Therapy"
Jason Stafford, Associate Professor, University of Texas, MD Anderson Cancer Center

43. 3/5/2013  Department of German (6)
"Speaking in Tongues"
Yoko Tawada, Author

44. 3/8/2013  PERMIAS (The Indonesian Student Organization) (3)
"The Gender Paradox: KAMMI Women and the Appeal of Conservative Islam"
Nancy Smith-Hefner, Associate Professor, Boston University

45. 3/9/2013  Filipino American Student Organization (6)
"Cultural Products, Producing Culture and Filipinos of Greater Philadelphia"
Eliseo Art Silva, Artist/Author

46. 3/15/2013  Department of Geography (3)
"Five Truths of Storytelling, Co-authorship and Alliance work"
Richa Nagar, Professor, University of Minnesota

47. 3/21/2013  Center for East Asian Studies (2)
"After the Quake: Social Media and Civil Society in Japan"
David H. Slater, Associate Professor of Culture Anthropology and Japanese Studies, Sophia University

48. 3/21/2013  Department of Education Policy Studies (1)
"Federal Involvement in U.S. K-12 Education Since World War Two"
Maris Vinovskis, Professor of Public Policy, University of Michigan

49. 3/21/2013  Center for Integrated Design, Helen Louis Allen Textile Collection (2)
"Lia Cook: Weaving and Innovation"
Lia Cook, Professor of Art, California College of the Arts

50. 4/2/2013  Soil Science Department (3)
"Water, sanitation and hygiene in the 21st century: science gaps and opportunities"
Huw Taylor, Professor of Microbial Ecology, University of Brighton

51. 4/3/2013  Soil Science Department (3)
"Breaking waterborne disease transmission routes in low-income countries: Engineering in partnership"
Huw Taylor, Professor of Microbial Ecology, University of Brighton

(continued)
52. 4/4/2013 Scandinavian Studies (2)  
"Gender, Violence, and the Structure of Enigma in Gisla Saga"  
Jeffrey Turco, Assistant Professor, Dept of German & Russian, School of Languages & Cultures, Purdue University

53. 4/5/2013 French and Italian (2)  
"New Excavations in the Early Fourteenth-Century Forms of Petrarch's 'Canzoniere'"  
Carlo Pulsoni, Professor, University of Perugia, Italy

54. 4/11/2013 Department of English Modernisms and Modernites Graduate Colloquium (2)  
"The Sensualists: Style and the Indian Modern"  
Judith Brown, Associate Professor, Department of English, Indiana University

55. 4/11/2013 Language Institute (4)  
"The Co-Operative Organization of Human Action"  
Charles Goodwin, University of California-Los Angeles

56. 4/11/2013 Center For Excellence in Family Studies (4)  
"Biological and Behavioral Effects of Compassion Training Relevant to Physical Health and Emotional Well-Being"  
Charles Raison, Associate Professor of Psychiatry and Family & Consumer Services, University of Arizona Dept of Psychiatry, College of Medicine

57. 4/12/2013 Collaborative Center for Health Equity (1)  
"Advancing American Indian Public Health Through Culture-focused Tobacco Control Efforts"  
Patricia Henderson, Vice President, Black Hills Center for American Indian Health

58. 4/12/2013 Wisconsin International Law Journal (1)  
"Comparative Perspectives on Social Justice Lawyering"  
Andrew James Harding, Director of Centre for Asian Legal Studies, National University of Singapore

59. 4/12/2013 Dance Department (1)  
"Riot of Spring: A panel with Susan Cook, Molissa Fenley, and Li Chiao-Ping"  
Molissa Fenley, Artist/Professor, Momenta Foundation

60. 4/16/2013 Human Development and Family Studies (8)  
"Engaging a Missing Community Asset: Responsible Fatherhood Practice as a Family and Community Building Strategy"  
Kirk Harris, Senior Advisor- Fathers, Families and Healthy Communities; Assistant Professor, UW-Milwaukee

(continued)
61. 4/17/2013 LGBT Campus Center, Division of Student Life (5)  
"Out and About Month Keynote: An Evening with Alison Bechdel"  
Alison Bechdel, All American Entertainment

62. 4/18/2013 European Studies Alliance, European Union Center of Excellence (3)  
"Does Diversity Management Promote Diversity?"  
Frank Dobbin, Professor of Sociology, Harvard University

63. 4/18/2013 Department of Communication Arts (2)  
"What is Authorship in Cinema?"  
Kent Jones, Director of Programming, New York Film Festival

64. 4/18/2013 Wisconsin Ecology (8)  
"Ecology Restoration: The ‘Is’ and the ‘Ought’"  
Margaret Palmer, Professor, University of Maryland;  
Director, National Socio-Environmental Synthesis

65. 4/19/2013 African Studies Program (2)  
"Louis-Philippe Dalembert: écrivain vagabond, entre langues et cultures"  
Louis-Philippe Dalembert, Poet, Novelist, Essayist, Short story writer, Journalist

66. 4/19/2013 Wisconsin Ecology (8)  
"Process-based Restoration to Restore Freshwater Ecosystems"  
Margaret Palmer, Professor, University of Maryland;  
Director, National Socio-Environmental Synthesis

67. 4/22/2013 Department of Classics (4)  
"The Invention of Roman Imperial Government"  
Emma Dench, Professor of Classics and History, Harvard University

68. 4/25/2013 Department of Neuroscience (1)  
"Thalamus Plays a Critical Role in Cortical Processing"  
S. Murray Sherman, Maurice Goldblatt Professor and Chair of Neurobiology,  
University of Chicago

69. 4/25/2013 UW Madison Geography Department (3)  
"Geospatial People: The role of VGI, PPGIS, and Public Data in Changing Geographic Systems"  
David Tulloch, Associate Professor of Landscape Architecture, Rutgers University

70. 4/26/2013 University of Wisconsin Press (2)  
"Goodbye Brazil: Emigres from the Land of Soccer and Samba"  
Maxine Margolis, Professor Emerita of Anthropology, University of Florida

(continued)
71. 5/1/2013  Department of Hebrew and Semitic Studies (3)
"'My God is YHWH': The Stories of Elijah in the Book of Kings"
Steven McKenzie, Professor of Hebrew Bible/Old Testament and Spence L. Wilson Senior Research Fellow, Rhodes College

72. 5/2/2013  Curriculum and Instruction (1)
"Juvenile-In-Justice"
Richard Ross, Professor, University of California - Santa Barbara

73. 5/3/2013  Department of Forest & Wildlife (6)
"Restore or protect? When is cure better than prevention, if ever?"
Hugh Possingham, Professor, The University of Queensland

74. 5/6/2013  Department of Slavic Languages (2)
"Eventfulness: A New Field in Narratology"
Wolf Schmid, Professor of Slavic Literature, Institut fur Slavistik

75. 5/7/2013  Art History (2)
"Reconstructing Grant Wood's 'Sultry Night'"
Tripp Evans, Professor and Mary L. Heuser Chair in the Arts, Wheaton College

76. 5/9/2013  Department of Political Science (1)
"Subalternity, Representation and Violence in India"
Kanchan Chandra, Assistant Professor, Department of Politics, New York University

77. 7/23/2013  Center for Russia, East Europe, and Central Asia (CREECA) (1)
"Assessing the Islamic Revival in Central Asia"
Pauline Jones Luong, Professor of Political Science, University of Michigan
REPORT OF THE
AD HOC TUITION POLICY FACULTY COMMITTEE

I. EXECUTIVE SUMMARY

The Ad Hoc Tuition Policy Faculty Committee was appointed by the University Committee in April of 2012 to “collect information and develop advice on tuition and issues related to affordability.”

This report neither makes hard recommendations nor advocates for one particular policy. Tuition policy is interlaced with basic mission and institutional philosophy. There are fundamental trade-offs to consider. Broader engagement would be needed to identify a single preferred path, and even then, there would not be unanimous agreement amongst the wide set of University constituencies. Instead, this report identifies different approaches and considerations to those approaches that should be considered in adoption of a policy. Our work focused on alternatives that increase revenue by approximately $20 million ($20M) or more. This amount is approximately two percent of the University's base instructional budget excluding gifts and grants. We accepted this as a baseline number that reflects a meaningful increase in revenue. Four alternative tuition policies are outlined, and the report presents variants of some of those alternatives, exploring the considerations and consequences of adopting any one alternative as University policy:

Alternative 1: Raising Tuition Revenue by Changing the Student Composition

Alternative 2: Imposing a Tuition Increment

Alternative 3: Raising Tuition Revenue through Tuition Differentials by Program of Study

Alternative 4: Tuition Increases Limited to Wage Indexes

1. Raising Tuition Revenue by Changing the Student Composition

Nonresident tuition is higher than resident tuition, so one approach to raise revenue is to increase the proportion of students paying non-resident tuition. The report outlines 3 different ways of doing this:

Option 1: Hold the size of the incoming first-year student class (and the student body) constant, while increasing the fraction of out-of-state students from 27.5% to 30%. The estimated annual increase in tuition revenue from this option is $19M.

Option 2: Hold the number of resident students constant, but increase the number of nonresident students by 1000. The estimated annual increase in tuition revenue from this option is $27M.

Option 3: Eliminate Minnesota tuition reciprocity at the University, while holding class size (and the composition of student body) constant. Under the assumption that all Minnesota students currently paying in-state tuition would, after termination of reciprocity, pay out-of-state rates, or would be replaced by other out-of-state students. The increase in tuition revenue would be about $52M per year.

(continued)
2. Imposing a Tuition Increment

Another strategy to filling the revenue gap is to simply raise tuition rates. One way to do so is to increment the tuition for broad groups of students. The report outlines several approaches as follows:

**Option 1. Increase non-resident tuition only**
Increasing non-resident tuition by $5000 with no increase to resident tuition would increase revenue by $38M.

**Option 2. Introduce different tuitions for domestic non-resident and international non-resident students, and increase both.**
Increasing tuition by $3000 for domestic non-residents, $6000 for international non-residents and $0 for residents would increase revenue by $29M.

**Option 3. Increase tuition for all:**
Increasing tuition by $2000 for Wisconsin residents, by $4000 for Domestic non-residents and $6000 for international non-resident students would increase revenue by $77M.

3. Raising Tuition Revenue through Tuition Differentials by Program of Study

The report notes that currently undergraduates with majors in the College of Engineering and the Wisconsin School of Business pay increments on top of their regular tuition. This practice could be expanded to other degree programs on campus. In principle, tuition could be differentiated by class, by major, or by the college within which the major is located. Rationales for differentiating tuition vary: increments might reflect cost of instruction, estimated impact on the future income of the student, demand for courses, market demand, or any combination of these. Given the assumptions made, the committee estimated that $15M to $20M in additional revenue could be generated.

4. Tuition Increases Limited to Wage Indexes

The final alternative presents a policy of restricting tuition increases to a wage index. With this alternative, other revenue generating activities would need to replace tuition as an increasing source of revenue and a policy on expenditures would be tied to the resulting budget.

II. INTRODUCTION TO FOUR ALTERNATIVES

This report was prepared by the Ad Hoc Tuition Policy Faculty Committee, appointed by the University Committee in April of 2012 to “collect information and develop advice on tuition and issues related to affordability.” During 2012, the committee examined current trends in tuition policy and financial aid both nationally and locally, conferring with University of Wisconsin-Madison (University) experts such as Vice Chancellor Bazzell. In January of 2013, the committee’s charge was renewed and refocused “to identify possible alternative tuition policies, including their potential consequences, to help address the institution’s budget needs.” In April 2013, it was revealed that a sizable budget surplus existed within both the UW System and the University, prompting calls for a tuition freeze and re-examination of the UW-System budget. Subsequent Board of Regents’ and legislative actions froze tuition at current levels for the 2014 biennium.

In 2004, University revenue from tuition for the first time exceeded revenue from state aid. Although the University’s revenue stream may evolve over time, it is clear that tuition will continue to be the predominant portion of the University’s instructional revenue for the foreseeable future. As a result, this report identifies and discusses a range of alternatives for tuition policy and their potential benefits and consequences. The Committee developed these based on reviews of relevant research and policy analysis as well as some simple calculations conducted by the Committee. An analysis of the critical details of implementation for each

(continued)
scenario must be mapped in order to ensure success, but this work was beyond the scope of the Committee’s charge and timeline. Revenue generation alone, however, does not fully address the financial challenges facing the University. Revenue must also be distributed in an effective way to the instructional programs in need and other operational changes beyond simply raising revenue must be contemplated.

As noted above, the Committee focused on tuition scenarios that could restore or generate revenue of $20M or more, and the consequences of those scenarios. From fiscal year 2011 to 2012, the University GPR funding decreased by more than $64 million ($64M). The UW-System offset approximately half this reduction by increasing resident and nonresident undergraduate tuitions, resulting in an approximately $35M instructional revenue reduction. Based on recent experiences, budget changes in excess of $20M per year represent meaningful improvements (or disruptions) to the University and are about two percent of the University's instructional base budget. This presented a reasonable threshold from which the Committee could consider different options. Although the Committee charge was centered on tuition policy and revenue, the Committee believed that future tuition policy should also be accompanied by changes to educational operations in order to prepare the university for its future.

The Committee membership holds a wide array of experiences and perspectives regarding tuition policy. The Committee did not agree nor come to consensus on any single best approach or a unified philosophy on tuition policy. Broader engagement within shared governance would be needed to develop such a policy that would garner support and buy-in. However, we did agree on several fundamental concepts inherent in the tuition policy alternatives offered in this report.

1. We assumed that the University would remain public, and for it to retain its public character it must continue to receive public support in line with the expectations of the citizenry of the state. The public nature of the University cannot be retained if revenue generation comes entirely from tuition and private revenue. In the end, only public investment will truly maintain the University as a public university that ranks with that of the finest universities in the world.

2. To ensure public accountability, good faith efforts to ensure affordability and state student access must remain intact. Thus the interaction of tuition policy with financial aid policy must be recognized and incorporated into adopted policy. The magnitude and allocation of financial aid funds, especially when accompanied by changes in tuition, should be documented and published. Moreover, the University should assess and share with the faculty, staff students, and state citizenry the impact of changes it makes in tuition and budgetary policy in a detailed manner that includes access, progress, achievement and completion rates for different student groups.

3. Any discussion about raising tuition revenue must acknowledge the concomitant threats to equity and affordability that will likely result. Less wealthy and otherwise marginalized families already face very high financial barriers to attending the University, of which tuition is only one part of the overall cost of attendance. In order to avoid significant declines in equity and affordability, it is imperative that funds in proportion to those raised by tuition increases be reserved and reallocated to need-based financial aid as well as toward efforts to reduce the potential effects of sticker shock on prospective applicants (for example, through outreach efforts). The effects of these efforts should be monitored and re-evaluated as needed.

The committee firmly believes that tuition increases can only be effective in creating a stronger University if these three fundamentals are included in any tuition policy change, and urges recognition of the very real constraints to and consequences of persistent increases in tuition on the University’s public mandate and on its financial viability.

(continued)
Four tuition policy alternatives are offered in this report. Although the committee discussed a wider set of alternatives, we focus on those the committee felt were most feasible for near-term implementation. The tuition increase levels illustrated in the alternatives are arbitrary but were chosen to demonstrate the relative magnitudes of increase that would be necessary to generate sufficient revenue to make a meaningful impact on the University’s instructional budget. Naturally, deeper analysis beyond the scope of the committee work would be needed to propose tuition increases that properly weigh the trade-offs and consequences of any increase. Although the increases were chosen for illustration to meet the $20M threshold mentioned earlier, the primary contribution of this report is to highlight the consequences and considerations that should at a minimum be considered with each alternative. These alternatives are presented in the order that they were developed with no attempt to indicate a priority of one over the other.

Alternative 1: Raising Tuition Revenue by Changing the Student Composition
Alternative 2: Imposing a Tuition Increment
Alternative 3: Raising Tuition Revenue Through Tuition Differentials by Program of Study
Alternative 4: Tuition Increases Limited to Wage Indexes

Most previous tuition increases have been across the board, the base undergraduate tuition rate has been raised for the majority of students. In order to provide a baseline policy to compare to our alternatives, consider the average historical tuition increase of 7.5% (academic years 2008 through 2012) across the board for undergraduates. With an undergraduate population of 29,118 in the Fall of 2012 and assuming that everyone would be subject to a tuition increase of $725 for the academic year (7.5% increase based on residential tuition only), this would have generated an additional annual revenue of $21.1M. This number should be kept in mind as a lower-threshold base case in considering the alternatives presented.

III. CURRENT TUITION, ENROLLMENT, AND FINANCIAL AID AT UW-MADISON

A. Tuition Information
Tuition is an important factor affecting the choices of prospective students and their families regarding college attendance. Tuition, together with available financial aid and the costs of room, board and fees, determines the “cost of attendance”, which is the effective cost that students and their supporting families face. Financial implications of attending college could also be considered in relation to the lifetime ‘payback’ in the form of earnings increases associated with the college experience and degree attainment. The University has made substantial effort to inform parents and prospective students of the full range of financial implications associated with attending and graduating from the university; see http://4yearpaybackcalculator.wceruw.org.

In addition to tuition, several other major components of cost of attendance are shown in Table 1 for a selection of years spanning the last decade. These include, but are not limited to, segregated fees, room and board, and textbooks. In addition, as a majority of students take out student loans while attending the University, Table 1 shows the rising average student debt load. As maintaining access for Wisconsin families is a core principle included in this report, it is important to consider these other costs that may pose a threat to access and degree completion and to weigh tuition increases in the context of the overall cost of attendance.
Table 1. Cost of Attendance at the University beyond Tuition

<table>
<thead>
<tr>
<th></th>
<th>AY02-03</th>
<th>AY07-08</th>
<th>AY12-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segregated Fees</td>
<td>$572</td>
<td>$854</td>
<td>$1105</td>
</tr>
<tr>
<td>Room &amp; Board</td>
<td>$5,940</td>
<td>$7,390</td>
<td>$9000</td>
</tr>
<tr>
<td>Books &amp; Supplies</td>
<td>$790</td>
<td>$930</td>
<td>$1,190</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$7,302</strong></td>
<td><strong>$9,174</strong></td>
<td><strong>$11,295</strong></td>
</tr>
<tr>
<td>Average Student Debt Upon</td>
<td>$16,395</td>
<td>$21,018</td>
<td>$25,759</td>
</tr>
</tbody>
</table>

*Average debt load only includes students who graduated with debt
*Seg fees listed are for full time students (12-18 credits)

Table Sources: UW-Madison Data Digest & UW System Office of Budget & Planning Tuition & Fee Schedule Archive: [http://www.uwsa.edu/budplan/tuition/archiveTuit.htm](http://www.uwsa.edu/budplan/tuition/archiveTuit.htm)

**Segregated Fees:** On average, segregated fees at UW-Madison have increased by 90% in the last 10 years (from $572 in AY02-03 to $1105 in AY12-13). This is largely due to the increases in non-allocables (the student union, recreational sports facilities, university health services and the childcare tuition assistance programs), which have increased by 103% in the past decade, compared to the 45% increase in allocables (student organizations, student government, campus bus program). Non-allocables are reported to make up 80% of the segregated fee budget. Notably, students involved in determining segregated fee budgets have significantly less control or input in altering non-allocable budgets.

Building projects such as the construction of the new Union South and the Memorial Union Renovation Project cost students $192 a year for up to thirty years without including the other charges for maintenance and upkeep of the buildings. While typically the student population is provided a vote on these projects, students are only provided a “yes” or “no” vote without any room to negotiate what is affordable. In addition marketing efforts are used to target the voting base, where only about 10% to 15% of students turn out to vote. Historically, the Student Services Finance Committee, the student representatives that allocate segregated fees, are not given input in the determination of the amount students will be charged or how the fees are spent on building projects.

**Room and Board:** Since 2007-08, dorm rates have increased 27% from an average of $5,574 to $7,054 projected for 2013-14 without purchasing food. Off-campus room and board increased by nearly $1000 in three years from 2009-10 to 2012-13.

2 [http://unionreinvestment.wisc.edu/?page_id=21](http://unionreinvestment.wisc.edu/?page_id=21)
4 [https://www.housing.wisc.edu/residencehalls/rates](https://www.housing.wisc.edu/residencehalls/rates)
5 [http://nces.ed.gov/collegenavigator/?s=WI&ct=1&ic=1&id=240444#expenses](http://nces.ed.gov/collegenavigator/?s=WI&ct=1&ic=1&id=240444#expenses)

(continued)
Textbooks: The cost of textbooks and supplies has nearly doubled in a decade from $660 for 2000-01\(^6\) to $1,100 for 2010-11\(^7\). For 2012-13, the cost of books and supplies was $1,190\(^8\). Many professors have chosen to make readings available electronically to combat this issue.

Student Loans: In 2011-12, 51% of undergraduate students graduated with student debt, with the average debt load at $25,759. In comparison in 2002-03 43% of undergrads graduated with debt with an average debt load at $16,395\(^9\). In under a decade, the average amount of debt load per student with debt has increased by about 57%. This does not include the amount of debt incurred by parents on behalf of students.

For the 2012-13 academic year, resident tuition and fees were $10,385 while out-of-state resident tuition was $26,634. Minnesota residents paid slightly more than Wisconsin students but the yearly difference is remitted to the State of Wisconsin and not kept by the University; thus the revenue generated for the University is the same for both groups. Domestic non-residents and international students pay the same tuition.

Table 2 compares University tuition to other public big ten universities.

Consistent with how national report cards (e.g. [http://www.measuringup2008.highereducation.org](http://www.measuringup2008.highereducation.org)) assess affordability, Table 3 provides a comparison of in-state tuition at each peer institution to the median family income of the bottom income quintile in the state.

\(^6\) [http://apir.wisc.edu/datadigest/DATA_DIGEST01.pdf](http://apir.wisc.edu/datadigest/DATA_DIGEST01.pdf)
\(^7\) [http://nces.ed.gov/collegenavigator/?s=W1&ct=1&ie=1&id=240444#expenses](http://nces.ed.gov/collegenavigator/?s=W1&ct=1&ie=1&id=240444#expenses)
\(^8\) [http://nces.ed.gov/collegenavigator/?s=W1&ct=1&ie=1&id=240444#expenses](http://nces.ed.gov/collegenavigator/?s=W1&ct=1&ie=1&id=240444#expenses)
Table 2. Public Big Ten Tuition Comparison

<table>
<thead>
<tr>
<th>2012-13 Academic Year Tuition and Required Fees at Public Big Ten Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Undergraduate</strong></td>
</tr>
<tr>
<td><strong>Resident</strong> Amount</td>
</tr>
<tr>
<td>Penn State $16,444</td>
</tr>
<tr>
<td>UIUC $14,960</td>
</tr>
<tr>
<td>U. Michigan $13,819</td>
</tr>
<tr>
<td>U. Minnesota $13,459</td>
</tr>
<tr>
<td>Michigan State $13,211</td>
</tr>
<tr>
<td>UW-Madison $10,385</td>
</tr>
<tr>
<td>Ohio State $10,037</td>
</tr>
<tr>
<td>Indiana $10,033</td>
</tr>
<tr>
<td>Purdue $9,900</td>
</tr>
<tr>
<td>U. Iowa $8,057</td>
</tr>
<tr>
<td>U. Nebraska $7,897</td>
</tr>
<tr>
<td><strong>Average Excluding UW-Madison</strong> $11,782</td>
</tr>
<tr>
<td><strong>Midpoint Excluding UW-Madison</strong> $11,624</td>
</tr>
<tr>
<td><strong>UW-Madison Distance from Midpoint</strong> -$1,239</td>
</tr>
</tbody>
</table>

**Notes:** Rates shown are for new, entering students. All of the public Big Ten universities assess additional fees, beyond those shown above, for undergraduates enrolled in specific academic programs, such as engineering and business. Sources: AAUDE Survey of Academic Year Tuition & Required Fees at AAU Public Universities and the University of Virginia Survey of Academic Year Tuition and Required Fees. The undergraduate tuition rates for the University of Michigan and Michigan State University are averages of multiple tuition structures.
Table 3. Resident Tuition Compared to Median Family Income, Peer Comparisons

<table>
<thead>
<tr>
<th>State’s Median Family Income (A)</th>
<th>State’s Median Family Income of Bottom 20% (B)</th>
<th>Tuition as a % of A</th>
<th>Tuition as a % of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penn State $56,000</td>
<td>$12,800</td>
<td>29%</td>
<td>128%</td>
</tr>
<tr>
<td>UIUC $58,000</td>
<td>$12,400</td>
<td>26%</td>
<td>121%</td>
</tr>
<tr>
<td>U. Michigan $50,700</td>
<td>$12,100</td>
<td>27%</td>
<td>114%</td>
</tr>
<tr>
<td>U. Minnesota $62,200</td>
<td>$13,000</td>
<td>22%</td>
<td>104%</td>
</tr>
<tr>
<td>Michigan State $50,700</td>
<td>$12,100</td>
<td>26%</td>
<td>109%</td>
</tr>
<tr>
<td>UW-Madison $56,400</td>
<td>$13,000</td>
<td>18%</td>
<td>80%</td>
</tr>
<tr>
<td>Ohio State $51,000</td>
<td>$12,000</td>
<td>20%</td>
<td>84%</td>
</tr>
<tr>
<td>Indiana $49,500</td>
<td>$12,050</td>
<td>20%</td>
<td>83%</td>
</tr>
<tr>
<td>Purdue $49,500</td>
<td>$12,050</td>
<td>20%</td>
<td>82%</td>
</tr>
<tr>
<td>U. Iowa $53,600</td>
<td>$13,000</td>
<td>15%</td>
<td>62%</td>
</tr>
<tr>
<td>U. Nebraska $55,100</td>
<td>$13,200</td>
<td>14%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Note: Median family income based on 2011 American Community Survey

B. Enrollment Information

Enrollment statistics are necessary for understanding how revenue is generated from tuition at the University and where growth in enrollment is a possible source of growth in revenue. Students in their first year of college are hereafter referred to as first-year students. Table 4 presents the numbers for the cohort of entering first-year students in 2012. The admission rate is the fraction of applicants that are admitted, and the yield rate is the fraction of admitted applicants that enroll. The total enrollment indicates the number of students who attended the University based on their tuition, and the percent of total new enrollment represented by that group.

Table 4. New Enrollment, UW-Madison First-Year Students, Fall 2012

<table>
<thead>
<tr>
<th>Tuition Type</th>
<th>Number of Applicants</th>
<th>Change in Size of Applicant Pool over Prior 5 Year Average</th>
<th>Percent of Applicants Who Were Admitted</th>
<th>Percent of Admitted Students Who Enrolled</th>
<th>Total Enrollment (% of new enrollment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wisconsin</td>
<td>8,441</td>
<td>-2.6%</td>
<td>68.0%</td>
<td>61.2%</td>
<td>3515 (56%)</td>
</tr>
<tr>
<td>Minnesota</td>
<td>3,242</td>
<td>2.3%</td>
<td>54.0%</td>
<td>43.0%</td>
<td>752 (12%)</td>
</tr>
<tr>
<td>Domestic non-resident</td>
<td>12,581</td>
<td>14%</td>
<td>50.7%</td>
<td>22.1%</td>
<td>1408 (22.4%)</td>
</tr>
<tr>
<td>International</td>
<td>4,770</td>
<td>54%</td>
<td>41.3%</td>
<td>30.6%</td>
<td>604 (9.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>29,034</td>
<td>11%</td>
<td>54.6%</td>
<td>39.6%</td>
<td>6,279</td>
</tr>
</tbody>
</table>

Source: [http://apir.wisc.edu/admissions/New_Freshmen_Applicants.pdf](http://apir.wisc.edu/admissions/New_Freshmen_Applicants.pdf)

Madison’s capacity for first-year student undergraduate enrollment is constrained by laboratory space, housing availability, and more importantly by a legislative cap placed on the percentage of students who are nonresident to the state. To date, nonresident has been defined to exclude both Minnesota and Wisconsin residents; a function of the reciprocity agreement granting them in-state tuition rates. The cap currently in place means that no more than 27.5% of the University’s enrollment may come from states other than Minnesota or Wisconsin. The cap does not stipulate the distribution of Minnesota or Wisconsin students, amongst the resident group.

(continued)
Among domestic students who are not Wisconsin residents, the vast majority of enrollment comes from a handful of states, dominated by Minnesota (about 4000 students per year), Illinois, (about 3,500 students per year), California (about 1,000 students per year), and New York (about 800 students per year). Among international students, the vast majority of first-year students come from China (478) and Korea (66). Only 4 other countries (Canada, India, Malaysia, and Saudi Arabia) are represented by at least 10 students in the Fall 2012 entering class.

The characteristics of students also vary by tuition types in ways that relate to financial aid and diversity. We review some of these characteristics in Table 5. It is evident that Wisconsin residents are economically disadvantaged relative to other prospective applicants and are more likely to remain in the state after graduation.

Table 5. Student Characteristics at UW-Madison by Type of Tuition

<table>
<thead>
<tr>
<th>Tuition Type</th>
<th>Median Family Income</th>
<th>% First Generation</th>
<th>% Targeted Minority</th>
<th>% Residing in Wisconsin After Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wisconsin</td>
<td>$80,000</td>
<td>24.7%</td>
<td>10%</td>
<td>81%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>$105,000</td>
<td>12.2%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Domestic non-resident</td>
<td>$130,000</td>
<td>11.0%</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td>International</td>
<td>n/a</td>
<td>19.3%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>$100,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[http://www.uwsa.edu/opar/ssb/2012-13/html/r_b205_tot.htm](http://www.uwsa.edu/opar/ssb/2012-13/html/r_b205_tot.htm)  
[http://finaidstudy.org/documents/conference/Witte%20Wolfe%20DahilBrown%20Thursday%202015pm%20Rm%20159.pptx](http://finaidstudy.org/documents/conference/Witte%20Wolfe%20DahilBrown%20Thursday%202015pm%20Rm%20159.pptx)

Notes:

- Median family income is of applicants, for 2007, in 2009 dollars, as estimated by LaFollette researchers John Witte and Barbara Wolfe. More information on family income is available here: [http://apir.wisc.edu/tuitionandfees/FamilyIncome_2009.pdf](http://apir.wisc.edu/tuitionandfees/FamilyIncome_2009.pdf)
- First generation means neither of the student’s parents holds a bachelor’s degree. This statistics is for new first-year students entering in fall 2011; the most recent available.
- Targeted minority means African-American, Latino, Southeast Asian, Native, or multiracial students. Data is for new first-year students in fall 2012. Data on students remaining in Wisconsin is based on alumni two to four years after graduation, using address information from UW institutions in 2007 for alumni who received a UW bachelor’s degree during 2003-04 or 2004-05. The statewide average for each category is presented.

C. Financial Aid

The University provides more generous financial aid than other UW System schools due to its endowment and higher tuition; however many needy students are still faced with a substantial cost of attendance. In this section we provide relevant information about the actual costs faced by students after taking into account available grant aid, and how this compares to students’ family incomes.

(continued)
Table 6 clearly demonstrates that while the University distributes more financial aid to needier students, it does not distribute it in sufficient amounts to ensure that the institution is as affordable to poorer families as it is to wealthier families, as measured by net price burden (the ratio of the net price to family income). It can be readily inferred that the impact of raising tuition is disproportionally felt by the poorest students, whom research indicates are also disproportionally price-sensitive.

Table 6. Net Price (Cost of Attendance Minus Grant Aid), by Expected Family Contribution: Wisconsin Residents

<table>
<thead>
<tr>
<th>Expected Family Contribution (EFC)</th>
<th>Estimated Grant Aid</th>
<th>Estimated Net Price</th>
<th>Estimated Net Price as a percent of family income (est. family income for a family of four)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$10,769</td>
<td>$13,635</td>
<td>68% ($20,000)</td>
</tr>
<tr>
<td>$1000</td>
<td>$9,429</td>
<td>$14,975</td>
<td>43% ($35,000)</td>
</tr>
<tr>
<td>$5000</td>
<td>$4,195</td>
<td>$20,209</td>
<td>34% ($60,000)</td>
</tr>
<tr>
<td>$10000</td>
<td>$3,000</td>
<td>$21,404</td>
<td>27% ($80,000)</td>
</tr>
<tr>
<td>$15000</td>
<td>$0</td>
<td>$24,404</td>
<td>24% ($100,000)</td>
</tr>
</tbody>
</table>

Source: [http://www.finaid.wisc.edu/award-estimator.php?ac-award-year=0809&ac-residency=1&ac-covenant=0&ac-level=1&ac-dependency=0&ac-hab=0&ac-efc=0&calculate=Calculate](http://www.finaid.wisc.edu/award-estimator.php?ac-award-year=0809&ac-residency=1&ac-covenant=0&ac-level=1&ac-dependency=0&ac-hab=0&ac-efc=0&calculate=Calculate)

Note: EFC varies by family financial strength. An EFC of $0 means the family has very little financial strength and thus is not expected to contribute any money towards the cost of college. COA is for 2013-2014. Estimated net price burden is calculated by dividing net price by a liberal estimate of family income for a family of four, provided in parentheses, based on this reference table. [http://www.stratagee.com/resources/efc_quick_reference/1213_efc_quick_reference.html](http://www.stratagee.com/resources/efc_quick_reference/1213_efc_quick_reference.html)

IV. ALTERNATIVE 1: RAISING TUITION REVENUE BY CHANGING THE STUDENT COMPOSITION

A. Overview of Three Options
A straightforward way to increase tuition revenue without raising tuition is to increase the fraction of students paying nonresident tuition. In this section three approaches to increasing the fraction of students paying nonresident tuition are discussed. We first preview the approaches and estimate the tuition revenue they would generate. We then discuss the approaches in greater detail.

To get a sense of the revenue increase that could be achieved through the different plans, the mix of students and tuition existing in the Fall of 2012 was taken, and the increased tuition revenue was calculated assuming each of these plans had been fully in place for the 2012-2013 academic year. At that time, the University enrolled 29,118 undergraduate students: 18,277 from Wisconsin, 3305 from Minnesota, and 7536 from neither Wisconsin nor Minnesota. The current in-state tuition is $10,885 and the out-of-state tuition is $26,634.

(continued)
Option 1: Hold the size of the incoming first-year student class (and the student body) constant, while increasing the fraction of nonresident students from 27.5% to 30%.\textsuperscript{12}

Estimated annual increase in tuition revenue: $19M.

Option 2: Hold the number of in-state students constant, but increase the number of nonresident students by 1000.\textsuperscript{13}

Estimated annual increase in tuition revenue: $27M.

Option 3: Eliminate Minnesota tuition reciprocity at the University, while holding class size (and the composition of student body) constant. The revenue estimate assumes that all Minnesota students currently paying in-state tuition would, after termination of reciprocity, be replaced by students paying nonresident rates, either from Minnesota or other states.\textsuperscript{14} Other assumptions are possible and would obviously impact the revenue received.

Estimated annual increase in tuition revenue: $52M.

B. Consequences of Options 1 and 2
Options 1 and 2 illustrate how arbitrary but relatively small changes to nonresident enrollment (as a percentage of total enrollment) provide significant additional revenue. The options also share consequences identified by the committee as listed below.

1. Both options would increase university revenue that might be used to contain tuition increases or improve academic quality. The benefits of lower tuition would accrue to both Wisconsin residents and non-residents.

2. Both options would change the composition of the student body. While the geographic diversity would increase, the economic diversity would likely decrease since non-residents tend to come from higher income families (see Table 4 above).

3. Neither option can be achieved without a change in the enrollment cap imposed by the UW Board of Regents and may have political consequences.

4. The main cost of option 1 is that the number of resident students would decrease. As a result, the University would not be serving as many Wisconsin residents.

5. Option 2 would require the university to expand capacity to accommodate 1,000 more students, which would bring some additional costs. These costs would need to be clearly and fully calculated in order to estimate the net revenue increases generated by this option.

\textsuperscript{12} The University of Wisconsin-Madison is limited to a maximum of 27.5% out-of-state students by action of the Wisconsin legislature. Option 1 would increase the number of out-of-state students by about 1200. The increase in tuition revenue from this change is: 1,200×((26634−10885)≅$19M.

\textsuperscript{13} The size of the out-of-state student body would increase from about 7500 to about 8500 and the size of the total student body would increase from about 29,000 to about 30,000. The proportion of out-of-state students would be about 28.3%. Option 2 would lead to an increase in tuition revenue of 1,000×26634≅$27M. We note that this option may entail additional costs required to accommodate the larger student body.

\textsuperscript{14} Under our assumptions, the increase in tuition revenue from eliminating reciprocity would be the current number of Minnesota residents enrolled at UW-Madison times the difference of the nonresident tuition rate minus the current reciprocity rate or (3305) x (26634 - 10833) = $52.2M.
Particular attention would need to be focused on assuring resources are available to address likely course and services bottlenecks so that students do not experience a decline in quality.

6. Both options provide benefits to non-Wisconsin residents, in that some who would not have been able to enroll in UW-Madison previously are now able to gain access.

C. Option 3: Eliminate Tuition Reciprocity

C1. Background
The tuition reciprocity agreement between Minnesota and Wisconsin was initiated in the early 1970s. It reflected a desire both to increase affordable college options for students from both states and to facilitate enrollment expansion at border campuses in Minnesota and Wisconsin. Over time, the agreement came to include the states’ flagship universities in Madison and the Twin Cities.

In part because of reciprocity, a significant share of the University’s student body is Minnesota residents. As shown in Table 4, 12% of the University’s new undergraduate enrollment comes from Minnesota, and those students are charged the resident rather than nonresident tuition rate. In total, there are about 3300 undergraduate enrollees at the University who are Minnesota residents.

C2: Specifics Regarding the Elimination-of-Reciprocity Option
In this proposed option, the reciprocity agreement would be renegotiated resulting in the removal of the University (Univ. of Wisconsin-Madison only) from the reciprocity agreement with Minnesota. With this change, students at the University who are residents of Minnesota would be charged tuition at the nonresident rate.

Given the elimination of reciprocity, two additional actions would be required. First, the UW System Board of Regents would need to redefine “nonresident” to include Minnesota residents. Second, the Board would also need to adjust the existing enrollment cap on nonresident students to ensure that seats for Wisconsin residents are preserved. The current cap on nonresident students is 27.5%, calculated on a three-year moving average basis. In 2012, 12% of enrolled students are Minnesota residents, 62.8% are Wisconsin residents, and 25.2% are from neither Minnesota nor Wisconsin. If the 27.5% cap did not change, there would be no gain from eliminating reciprocity. However, if the cap was adjusted so as to define nonresident students to be all those residing outside the state, it would be reasonable to adjust the cap as well to accommodate this. For example, if the current level of non-Wisconsin enrollees—about 37%—was judged to be appropriate, adjustment of the cap on non-resident enrollment from 27.5% to 39% would be consistent with the change in reciprocity arrangements. In this case, a minimum of 61% of students enrolled at the University would be Wisconsin residents, approximately the same as the current percentage of about 62%.

C3: Estimates of the Tuition Revenue Increase from the Elimination-of-Reciprocity Option
In our analysis of this option, we assume no change in the overall size of the University student body and that the resident enrollment cap would be adjusted to hold the number of Wisconsin residents roughly fixed. This means that all Minnesota students currently paying the Minnesota compact

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15 However, only 56% of the 2012 beginning student class are Wisconsin residents.
16 This is slightly lower than our Big Ten peers, most of whom have about 63-64% of enrolled students being state residents. For example, the University of Michigan and Penn State University have 63% and 64% of enrolled students from within the state, respectively. However, we note that both Pennsylvania and Michigan are larger states than Wisconsin, which facilitates the enrollment of in-state students.

(continued)
tuition would, after termination of reciprocity, pay the nonresident tuition rate, or would be replaced by other out of state students. As indicated above, we calculate an increase in tuition revenue of $52 million from this policy change.

C4: Consequences of Option 3

i) The primary benefit and purpose of allowing Minnesota residents to pay the Minnesota Compact rate, which is similar to in-state tuition at the University, is to open seats for Wisconsin residents at the Minnesota-Twin Cities campus. Hence, affordable choices among flagship universities are expanded for Wisconsin students. Eliminating reciprocity would constrain this benefit.

ii) The University forgoes substantial tuition revenue because of reciprocity. Eliminating reciprocity could result in a substantial increase in tuition revenue. Given the assumptions made, the increase in tuition revenue would be $52M per year. Clearly, different revenue amounts would depend on any negotiated agreement on reciprocity.

iii) Minnesota students are, on average wealthier than Wisconsin students. If the loss of Minnesota students were offset by an equivalent increase in Wisconsin students, the University student body would tend to better reflect the wealth of Wisconsin residents. Conversely, if the loss of Minnesota students were offset by an equivalent increase in students not resident in either Minnesota or Wisconsin, an even higher income population, the University student body would tend to be skewed to a wealthier set of families. Each of these scenarios may have an impact on the type and level of educational services provided.

iv) If, as seems likely, college attendance by moderately-high achieving students is not expanded by reciprocity, eliminating the option for Wisconsin students to attend UM-Twin Cities at a discounted price would likely lead to enrollment increases at Wisconsin universities such as Eau Claire and La Crosse. Enrollment of Wisconsin students at these institutions is declining, and eliminating reciprocity may work to reverse this trend.17

We note that several other claims have been made regarding the effects of reciprocity, such as:

• An increase in overall qualification of the student body because of the stronger qualifications of Minnesota students relative to Wisconsin students,
• Increased student body geographic diversity due to the presence of Minnesota students,
• Gains for other Wisconsin system universities because of the inclusion of the University in the reciprocity agreement, and
• Because of the existing definition of the nonresident student cap, Minnesota students occupy seats at University that might not otherwise be filled.

The Committee judges these claims to be without substantial merit. Undergraduate enrollment at the University is a function of the size and qualifications of the applicant pool, the availability of seats, and legal limitations on how those seats are distributed among students. Currently, the University enjoys a very large (and growing) surplus applicant pool of non-Wisconsin and non-Minnesota students. According to the University’s Office of Admissions and Aid, many applicants in this pool have academic qualifications equal to or superior to applicants who are Minnesota residents. As a

17 http://www.uwsa.edu/opar/ssb/2012-13/html/r_a204_tot.htm

(continued)
result, if any reduction in the enrollment of Minnesota residents at the University were offset by an increase of such “out-of-state” students, there would be no reduction in student body quality. If the policy change resulted in a reduction in the enrollment of Minnesota residents at the University which is offset by an increase in out-of-state students, the current concentration of Minnesota residents in the non-Wisconsin student body would be reduced. The geographic diversity of the student body would be increased.

V. ALTERNATIVE 2: IMPOSING A TUITION INCREMENT

A. Overview
Another strategy to filling the revenue gap is to raise tuition to levels higher than the Board of Regents have historically considered acceptable. It is possible to implement additional tuition increases that keep the University’s tuition within the range of its Big Ten public peers and generate revenue gains to help close budget gaps. Although impacts of large percentage increases in tuition can be partially mitigated with financial aid, there are practical limits to the extent to which undergraduate tuition can be raised without impacting access and the public nature of the university. Raising graduate student tuition also has implications on affordability and on grants because of tuition remission.

Table 1 demonstrated that the current University tuition is positioned roughly in the middle of the Big Ten public institutions. Three options for increasing tuition and their estimated revenue effects are presented below and summarized in Table 7. The consequences of proposed tuition increases largely depend on which students experience what type of tuition increase. Currently, there are two base levels of student tuition: resident and non-resident. Non-resident students currently include students from all other 48 states (excluding Wisconsin and Minnesota) and US territories, as well as all other countries. There are two categories of students that could, potentially, be targeted for tuition increases. Many universities separate out international students from non-resident US students and charge these students higher rates than resident or non-resident US-based students. One of our options below assumes that the legislature allows the University to adopt a tuition differentiation between resident, non-resident, and international students. Were such a differentiation allowed, the University might be able to protect Wisconsin residents and, to some extent, US residents from tuition hikes necessary to raise revenue. Were such a differentiation allowed, however, new forms of inequity might arise that should concern us in our quest to create a world-class university that reflects and engages with the world’s full range of people, environments, challenges, and experiences. Unlike US students, international students have very little access to financial aid or employment in the US.

Tuition increases of any sort raise the likelihood of increased inequity, particularly based on class. Were tuition increases to be selected as a mechanism for raising revenue, the University should be deliberate in identifying inequities that result from those increases. Raising tuition will always affect our student population. The question that we must ask ourselves is whether the effects are ones we are willing to have our students incur versus the alternatives imposed by the loss of revenue. In order to understand the consequences of these changes, the university should adopt a full, research-based approach to evaluating the consequences of policy and tuition changes. This should include careful scrutiny of data collected by the admissions office (including who applies, accepts, enrolls, remains in school, and how long it takes them to graduate), as well as interview- and survey-based data collection methods that try to track changes that may not be evident in the demographic data. For example, such research should examine whether students are making different decisions about where to live; what courses to select; when, how, and how much to work while taking classes; whether to pursue options like study abroad; how they interact with family about tuition issues; whether more students are having to pay tuition in installations

(continued)
and what fees they are paying to do so; whether students are less able to place large amounts of money on their UW card to access lower food fees (currently, students must place a lump sum of $250 on their card to receive lower rates), and so forth. Particular attention should also be paid to students whose legal situations might be affected by changes in student typologies.

For any change in tuition we expect a behavioral response. Modeling this response is very complicated because it depends not only on the change in demand for potential Wisconsin applicants, but also crucially on how the admissions office responds to this change. It also depends on the reaction of the financial aid office, of the state, and of our peer institutions. The Committee could not take on the complex task of modeling this full system but did wish to provide some sense of the amount of revenue that could be raised by various options. We do this by abstracting from any behavior change and calculating the amount of revenue that would be collected holding the current distribution of UW-Madison students fixed. To the extent that raising the tuition of one group over others will likely lead to a decrease in enrollment by that group, we are likely overstating the revenue gain. We therefore characterize our revenue calculation as the potential increase in revenue rather than the forecasted increase in revenue.

B. Option 1: Increase Non-resident Tuition Only
An increase of $5000 on non-resident students only, arithmetically yields approximately $38M.

\[ 7536 \times \$5000 \approx \$38M \]

B1. Consequences of Option 1
This arbitrary increase would lead us to be the third-most expensive institution for non-residents in the Big Ten, behind Michigan and Michigan State and only slightly higher than Indiana (assuming the other schools do not increase/decrease tuition). What is demonstrated is that significant revenue could be generated to address a budget shortfall while at the same time protecting resident tuition.

This change might have the consequence of making University’s non-resident applicant pool become less diverse, perhaps particularly in terms of class. Again, it would be essential for admissions to track any changes occurring and for the university as a whole to discuss whether such changes are acceptable to us when we think about the in- and out-of-classroom experiences that University students are having.

C. Option 2: Increase Non-resident and International Tuition
In this option we propose an arbitrary increase of $3000 for domestic non-residents and $6000 for international non-residents. With recent undergraduate enrollment of 2033 international students and 5503 US-based nonresidents, the increased revenue yield would be:

\[ 5503 \times \$3000 + 2033 \times \$6000 \approx \$29M \]

C1. Consequences of Option 2
This option might discourage and reduce enrollment for students from a variety of regions in the world. It would maintain affordability for Wisconsin residents, and would maintain greater affordability for US non-WI residents compared to Option 1, under the assumption that non-resident and international enrollments would be maintained.

(continued)
D. Option 3: Increase Tuition by Differentiating by Residency

Option 3 provides a broader spectrum of tuition increases, and by including an increase in resident tuition, generates considerably greater levels of revenue than the previous options. Increases of $2000 for Wisconsin residents, $4000 for Domestic non-residents, and $6000 for other international students are shown for illustration.

\[ 21582 \times 2000 + 5503 \times 4000 + 2033 \times 6000 \approx 77M \]

D1. Consequences of Option 3

This option will generate significant revenue yet provides more modest tuition increase for Wisconsin residents. It attempts to address issues of Wisconsin, national, and international diversity on our campus. The $6,000 increase in international student tuition will further skew the student population toward those from wealthier families.

Table 7. Summary of Alternative 2 Options Contrasted with the Baseline Across the Board Increase

<table>
<thead>
<tr>
<th>Student Category</th>
<th>Across the Board</th>
<th>Non-resident Only (Option 1)</th>
<th>Non-resident International (Option 2)</th>
<th>Differentiating by Residency (Option 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WI resident</td>
<td>+$3000</td>
<td>+0</td>
<td>+0</td>
<td>+$2000</td>
</tr>
<tr>
<td>Domestic resident (non-WI)</td>
<td>+$3000</td>
<td>+$5000</td>
<td>+$3000</td>
<td>+$4000</td>
</tr>
<tr>
<td>International</td>
<td>+$3000</td>
<td>+$5000</td>
<td>+$6000</td>
<td>+$6000</td>
</tr>
<tr>
<td>Revenue</td>
<td>$87M</td>
<td>$38M</td>
<td>$29M</td>
<td>$77M</td>
</tr>
</tbody>
</table>

VI. ALTERNATIVE 3: RAISING TUITION REVENUE THROUGH TUITION DIFFERENTIALS BY PROGRAM OF STUDY

A. Overview of the Differential Tuition Alternative

Broadly speaking tuition differentials fall into two categories. The first is based on different courses of study and the second, as demonstrated in the prior section, on characteristics of the student such as place of residence or income. As used here in Alternative 3, differential tuition is based on the course of study and is an amount added to a base undergraduate tuition set by the Board of Regents. The differential tuition by program of study (DT) increases overall tuition revenues by charging students an additional tuition, based on various aspects of their degree program. These may include cost of instruction, demand for the program, projected income after graduating and other factors. Differential tuitions are currently applied at about half the public research universities in the country and the fraction is increasing.18

Because of the complexities of differential tuition relative to the simplicity of uniform increases in tuition to all groups, we refer to some of the pertinent literature in this section. This is not intended to

discount the vast body of literature that has examined tuition costs that may be relevant to this and the prior alternatives. Certainly, as the University’s options are narrowed and refined, a more thorough consideration of the relevant literature is warranted.

As considered by the Committee, DT would be applied to selected degrees. Tuition for most other degrees would be at the base tuition level set by the Board of Regents. This alternative suggests that the DT’s existing now within the University’s College of Engineering and the Wisconsin School of Business would continue in some form, but new DT’s would be initiated for other selected degree programs. This alternative provides background and general suggestions for how these DT’s could be applied at the University. Using these, the Committee estimated (not shown) the increase in annual revenue from this alternative could be between $15M and $20M. To provide a context, a 15% differential tuition (based on resident tuition) applied to the last 2 years for 50% of the undergraduate would generate approximately $20M.

B. Current Differential Tuition at the University

Differential tuition was first implemented at the University in the Fall of 2007 for students in the Bachelors of Business Administration program and for the Certificate in Business. Board of Regent debate on the issue was extensive but the motion to adopt was approved. After phase-in, these students were assessed $500 and $150 per semester respectively, and these rates remain in effect. The base University semester tuition in 2007 was $3594 and as such the $500 DT represented 14% additional tuition at that time. The primary motivation for the Wisconsin School of Business (WSoB) DT centered on program capacity, and related faculty retention and recruitment. From the Fall of 2007 to present, undergraduate enrollment in the WSoB increased by approximately 35%. Minority enrollments increased by 34%.

A differential tuition for undergraduate degree programs in the College of Engineering (CoE) was approved by the Board of Regents in June of 2008. The motion to approve passed unanimously in the Business, Finance, and Audit Committee and subsequently in the full Board of Regents meeting. After phase-in, students in degree granting engineering programs were assessed $700 per semester and this continues to present. In 2012 this represented approximately a 14% increase in the base UW-Madison tuition and fees. The primary motivations included reducing course bottlenecks to allow timely graduation, modernizing hands-on learning and laboratories using the latest technology (cost of instruction), and modest increases in the number of engineering graduates per year. From the Fall of 2008 to 2012, undergraduate enrollment in the College of Engineering increased by approximately 20% and minority enrollments increased by 35%.

In each case, because of the selective admittance procedures to the WSoB and the CoE, first year students have not paid the DT. The DT has been added once the student moves into the degree granting program within the school or college which occurs after the first year. Minnesota reciprocity students presently are not charged the DT in compliance with the Minnesota Compact. At present these tuition differentials provide additional annual revenue of over one million dollars each, are allocated to the specific schools and colleges (WSoB and CoE) and provide single digit percentage increases to their overall instructional budget.

(continued)
C. Prevalence of Differential Tuition in the U.S.
Adoption of differential tuition is becoming widespread. As of 2011, 40 to 44% of the 174 public universities that are doctoral institutions have differential tuitions in place and the number is steadily increasing. The price tags average from 6 to 15% of base tuition levels. Engineering and Business are the most common programs with DT’s but DT’s exist in most undergraduate majors, though with less prevalence. About 20% of nursing programs, 11% of science programs, and 9% of fine arts programs in these universities, which include many of our peers, have DT’s. Based on data published in 2012, the rate of increase in campuses charging DT’s is quite steady over the last several years at about 7-8 per year.19 On the other hand, the University of California System recently considered and rejected DT.

D. Implementation of Differential Tuition at the University

D1. Rationales for establishing differential tuitions
There are three major rationales that have been developed for establishing differential tuition 20,21 and at present we are proposing that all of these should be considered in establishing a DT policy at the University. The issues are complex and involve considerations that are economic, sociological, political, and philosophical. Hence, we have chosen to elaborate and comment on (in the Consequences section) the rationales that have been used with the expectation that the University will develop a mechanism to determine the specifics of how we will establish a DT policy here at Madison. In all cases, any differential tuition proposal for a program must take into account program costs relative to those in peer institutions.

i) **Cost of program.** Relative cost of the degree program is one common rationale for DT with more expensive programs charging more. This could be based on technology and equipment, the variety of courses required, the need for small class sizes and other considerations. This is the most prevalent basis for current DT’s, for example in the University’s CoE, and nationally as discussed in the above-referenced literature.

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There are generally significant differences in costs of programs. As noted in a recent four-state study\textsuperscript{22}, the cost of upper division programs for engineering, physical sciences, and visual/performing arts was about 40\% more than the least costly majors. Costs per student credit hour in upper division courses of specific majors varied over a large range with Agriculture, for example being 80\% more costly than Psychology. Hence, to the extent that it is felt that individual students should bear the costs of their particular degree choice, there is a wide range in the tuition that might be charged for different majors.

ii) Financial benefit of the program to the student. Another rationale is the financial benefit of the program to the student.\textsuperscript{20} On average, students in different disciplines will have greatly different earning potentials. For example the median income for students graduating with a degree in economics in 2011 was $70K while it was $45K in Sociology and $29K in Counseling Psychology. In petroleum engineering it was $170K.\textsuperscript{23} In this case DT is a way that students’ relative potential future earnings from a degree are used to set relative financial contributions that they are asked to make in securing their degree. Practically this makes sense in that students in more remunerative degrees are able to take out (and repay) larger loans.\textsuperscript{20} Expectedly there is controversy in the area over the criterion of increased earning powers\textsuperscript{24} but to the extent that it is felt that students’ tuition should relate to the financial benefit of their education here at UW, there is again a wide range of tuitions that might be charged.

iii) Student demand for program. A third rationale is to provide revenue for instructional resources that align with student demand for the major. Hence, if a major without excess capacity became very popular, there would need to be an increase in instructional resources.

There are additional considerations in setting the pricing and timing of DT. For various reasons few degree programs implement DT for first year students. Two prevailing reasons are to facilitate undecided students moving in and out of the major to the major of their choice, and because in some programs, first year students may only be taking one or two courses directly within the degree granting unit are two prevailing reasons for the delayed implementation. In setting the price of the differential, affordability and price charged by competing institutions must be weighed into the decision making process.

D2. Allocation of Revenues from Differential Tuition

Differential tuition revenue typically is allocated to the academic unit that imposes the differential. Some institutions allocate a portion of the DT to central campus, to other units who support the students in the degree programs associated with the differential and/or to financial aid. The allocation policy should reflect the fundamental premise for the differential tuition as articulated in the following points:

\textsuperscript{24} Lavalle, L (2012) http://www.businessweek.com/bschools/blogs/mba_admissions/archives/2012/02/differential_tuition_a_matter_of_fairness.html

(continued)
i) When the DT is cost-based for a specific program, or based on demand for additional faculty and facilities, then the necessary dollars should be allocated to the specific program. However, budgeting can be such that there may be an additional portion that is allocated to central campus.

ii) When the DT is based on the future earnings criterion or general demand for the program, then there is no clear reason that the money needs to go to the specific program. In this case a wider allocation policy might be justified and indeed, the current trend is for DT revenue to go to central campus to cover general needs.21

iii) To emphasize the importance of financial aid, almost all instances of differential tuition allot a substantial percentage (15% to 20% of the DT in general) to financial aid in order to ensure equal access. In some cases this is mandated by central administration and in other cases Deans choose to do this. For example at Texas A&M and Iowa State 15% to 20% of the DT revenue is mandated as financial aid. This is a more controversial issue that centers on the degree to which full-paying students should provide tuition assistance to those students who have established financial need. Alternatives to the use of differential tuition paid by some students to provide financial assistance include gift funds and other forms of scholarships. Currently, there is neither one policy nor one viewpoint on this matter that predominates at the University. In any event, the Committee is united that increases in tuition in any form, must be accompanied by proportionate increases in financial aid.

D3. Consequences of Differential Tuitions

Differential tuition may drive changes in student academic behaviors and career choices, and thus the consequences are complex and difficult to predict.

i) Biasing of Degree Choices. Do DT’s, with their higher tuition rates, bias students away from the more costly disciplines and if so, is this behavior deemed undesirable? Evidence from the University described above shows that enrollments in WSoB and CoE have increased substantially during the 3 to 5 years that DT’s have been in effect. For example enrollment in Engineering increased by about 20% over this period while in the previous four years it had decreased by 10%. This is not necessarily cause-and-effect but could be an indication that economic conditions and the perceived value of the degrees predominates over the tuition increase. Enrollment in the Wisconsin School of Business increased by about 40% while in the previous 4 years it had remained approximately level. In contrast to these local data, a recent study by Stange using national data on 142 research universities, sampling about 2500 students in each category, identified a decrease in enrollment for Engineering (a 1.1% decrease in the fraction of university students getting engineering degrees), but no significant effects on Business or Nursing.20 Data at the University will need to be monitored, in addition to the emerging literature.

ii) Effects of Differential Tuitions on Diversity. There are several potential impacts on student diversity that could occur or have been documented to occur. Student access can be impacted by program competitiveness and by program cost, both of which may disproportionately impact students from lower socioeconomic groups. Implementation of DT has the potential to improve access and diversity if the DT is for expanding and opening additional capacity in high demand majors. Conversely, high demand majors that are not expanded may adopt increasingly competitive admission requirements that can favor students that have the best preparation from the best high schools while indirectly restricting

(continued)
access for applicants from lower socioeconomic groups. In addition if DT is implemented, but not accompanied by financial aid and messaging about the availability of financial aid, students from lower socio-economic groups may be driven away from the major. Generally the DT programs have significant amounts of the revenue dedicated to financial aid to mitigate the increased cost. Generally 15 to 20% of the new revenue goes to financial aid and this is almost always explicit. However while this is a stated objective, the effectiveness of cost mitigation has not been established. Stange finds no evidence overall for a diversity related reallocation of aid that is based on DT’s while, in contrast, there are two positive instances where this has apparently occurred for engineering.

There are somewhat worrying, though very sparse, data showing that fractional decreases in the number of students in engineering following the start of DT were 2 to 3 times larger for women and minorities than for white males. The data did not rise to significance because of small sample size. Furthermore, from what is known about the effect of sticker price as a deterrent, the fact that the published price of a program is higher as a result of the differential may well discourage some students from even applying to more costly or lucrative degree programs, despite compensating aid packages. This is likely to affect lower income and minority groups more than others. Overall this is an area of concern and would need to be closely monitored if we adopted this policy.

iv) Difficulty Associated with Estimating Future Earnings. One potential inequity arising from using future earnings from a degree as a basis for DT is that these relative tuitions are based on projected average earnings from the degree. Some students taking the more expensive degrees will not go on to earn the average income in their field for many reasons, and also some students taking less expensive degrees will go on to earn a great deal of money. Although this forms a basis for assigning DT’s, there are many potential inequities associated with it.

v) Difficulties in Mechanics of Implementation. The criteria that we have described for determining DT’s require sophisticated data analysis, and relatively current updating of those data. Student tracking must be conducted in a greater detail than in the past and academic rules must be in line to ensure DT’s are charged in an equitable and consistent basis. Such tracking, however, is not beyond the increasingly sophisticated tracking capabilities in the University’s administrative computer databases.


(continued)
VII. ALTERNATIVE 4: RESIDENT UNDERGRADUATE TUITION INCREASES LIMITED TO WAGE INDICES

A. Basic Concept

There is a growing advocacy with the fundamental position that the university’s financial challenges cannot be addressed through continual tuition increases that have outpaced other basic economic indices. The views within this advocacy group range from those that seek a permanent freeze in tuition and a restoration of increased state funding to those that simply recognize that the continual rise in tuition if unabated is eventually financially unsustainable. The Committee recognized that there are both practical and philosophical reasons to limit tuition increases for a public university to remain truly public and accessible. This final alternative proposes that tuition increases can’t and shouldn’t be considered a long-term financial cure-all. This alternative by itself, does not address the financial needs of the University from a revenue perspective, but simply reminds us that the University cannot continue to function as a public resource for the state and its citizenry by achieving financial stability through repeated large increases in tuition. Those in this advocacy make the claim for increased state support and/or for more radical changes to how the university functions to reduce its overall costs. By whatever mechanism the University achieves a stable financial footing, the idea here is that future resident undergraduate tuition increases should be held in line with an appropriate wage index to ensure the cost of attending the University does not outstrip the ability of the state citizenry to pay.

If the University is to retain a strong public service role, sufficient funds must be provided by the State of Wisconsin. This funding should be accompanied by an understanding or compact with what the University provides to the state in return for stable and predictable state support. Ultimately, the primary source of University revenue should drive an increased level of accountability that inspires confidence the revenue is being allocated to meet the needs and expectations of those supplying the revenue.

B. Consequence of Limiting Resident Undergraduate Tuition Increases to Wage Indices

While there are many positive consequences to limiting tuition growth, adopting a hard position that restricts or limits increases forces financial planning that either must generate increased revenue from other sources, reduce spending or both. Some suggest the state should increase its general purpose revenue contribution to the university to make up the difference. Others suggest more aggressive development efforts could fill the gap. Either one would take considerable time to achieve and cannot be counted on in the near term. Outlined below are the consequences of adopting a restrictive tuition growth policy.

i) Through implementation, this alternative would prioritize access for residents of Wisconsin who come from socio-economic backgrounds that are limited in their financial ability to attend the University. This alternative emphasizes affordable tuition for all Wisconsinites and simply states that financial stability must be achieved from other sources or changes in University operations.

ii) Tuition increases become more predictable for Wisconsin families and students, allowing them to plan ahead.

iii) By committing itself to affordable tuition, a dialogue could be opened for a new compact with the State of Wisconsin that could result in stable and predictable state support in return for mutually agreed upon deliverables.

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iv) Without increases in revenue from non-tuition sources, financial stability of the University would have to be achieved by changes in spending behavior. Possible consequences, which may or may not be negative, would likely include:
  • significant cost restructuring,
  • changes in educational delivery,
  • program closure to maintain quality in the remaining programs,
  • increase in the student to faculty ratio, and
  • reduced enrollment.

Professor Harry Brighouse (Philosophy)
Associate Dean Steven Cramer, chair (Engineering)
Ms. Allie Gardner, ex-officio (ASM)
Associate Professor Sara Goldrick-Rab (Educational Policy Studies & Sociology)
Professor Emeritus Robert Haveman (Economics, and LaFollette)
Associate Professor Nancy Kendall (Educational Policy Studies)
Professor Peter Lipton, UC (Neuroscience)
John and Tashia Morgridge Professor of Economics Christopher Taber (Economics)
Professor William Tracy (Agronomy)
December 2013
RESOLUTION

I. BACKGROUND
On December 4, 2013 the American Studies Association adopted a resolution stating that the organization would “honor the call of Palestinian civil society for a boycott of Israeli academic institutions.” This resolution has been roundly criticized by many academics, including members of the UW faculty, on the grounds that it operates to restrict the exchange of views and sharing of ideas that is essential to academic freedom. While the ASA has officially taken the position that the boycott only applies to the ASA’s institutional arrangements, they have also taken the position that U.S. scholars are "discouraged" from engaging in activities that involve "a formal partnership with or sponsorship by Israeli academic institutions”.

http://www.theasa.net/what_does_the_academic_boycott_mean_for_the_asa). In "discouraging” scholars in this way, the ASA calls on its members to relinquish the intellectual relationships, avenues of inquiry, and resources that make academic freedom a viable and living reality. In addition, the ASA resolution does not offer any explanation for the fact that Israel is singled out for a boycott despite the fact that other countries whose governments engage in far more severe violations of human rights and academic freedom are left unaddressed. While we recognize that there are valid arguments for treating Israel differently from nations that do not claim to be democracies or that do not enjoy a similarly close relationship with the United States, without adequate explanation the act of singling out Israel raises concerns about threats to academic freedom, as history and experience have shown.

We recognize the fact that the ASA boycott is not a unique case, but rather stands as an example of larger phenomenon that has recently come to public attention.

II. DISCUSSION
Academic freedom means more than the absence of intervention by political authorities. The tradition of sifting and winnowing of ideas requires the creation and preservation of an atmosphere in which different views are freely heard, students are confronted with unfamiliar and challenging arguments, and members of the university community are exposed to different voices. We recognize that the ASA is a private organization, and as such has First Amendment rights of expressive association that permit its controlling body to exclude those who would interfere with the expression of the group’s message. Nonetheless, it is singularly appropriate that the faculty of the University of Wisconsin expresses a position in the current controversy. The ASA boycott is intended to discourage activities in which many UW faculty have engaged to the benefit of their own work and that of the University. UW has a long tradition of faculty involvement in governance, which gives the Faculty Senate both the privilege and the responsibility of expressing the views of the University faculty on matters affecting our community.

The following resolution is proposed in the hope that professional organizations such as the ASA will return to their proper role of fostering the expression and exchange of views among scholars all over the world.

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III. RESOLUTION
Whereas the adoption by the Association for American Studies of a resolution instituting an academic boycott of Israel by that institution is contrary to principles of free exchange of ideas that are central to the mission of the University of Wisconsin;

Therefore, the Faculty Senate of the University of Wisconsin expresses its opposition to and rejection of the ASA boycott.

And therefore, the Faculty Senate similarly condemns any limitations to the free exchange and exploration of ideas, and any academic boycott or similar policy that threatens to distort the mission of academic organizations.
REPORT OF THE AD HOC COMMITTEE
ON FOSSIL FUEL USE AND CLIMATE CHANGE

Executive Summary

In June 2013 the University Committee established the Ad Hoc Committee on Fossil Fuel Use and Climate Change to explore whether the Faculty Senate should take a position on these critical issues. After soliciting expert input and examining a wide range of viewpoints across the campus community, the Ad Hoc Committee developed this report which addresses the science of climate change, human impacts of climate change (both observed and projected), energy profiles and co-benefits of climate mitigation, risk analysis and decision-making considerations, and recommendations for future actions.

The Committee acknowledges the pivotal role and tremendous benefits of fossil fuels to mankind. The Committee further acknowledges and accepts the science and impacts of climate change, as well as the potential peril from continuing to burn fossil fuels for energy. We further acknowledge that the University has a unique responsibility to lead on this issue. As a world-renowned public university charged with educating the next generation of leaders and citizens while conducting research and public outreach beyond the classroom, we acknowledge the urgency for actions that address global climate change.

The Committee recommends that the University undertake bold initiatives leading to near term real world impacts

1) Prioritize Informal and Formal Education Initiatives around Climate Change
   Along with expanded course offerings in climate science, energy, economics and policy, the Ad Hoc Committee recommends developing and promoting educational opportunities for faculty, staff and the extended campus community. One example could be leveraging the “Go Big Read” initiative and hosting community discussion forums. Other suggestions include promoting the nascent peer-to-peer Climate Knowledge Project or encouraging new low-carbon Educational Innovation projects. In keeping with the Wisconsin Idea, outreach, education and extension efforts around climate change mitigation and adaptation should be prioritized across the state.

2) Promote Interdisciplinary and Interconnected Research on Climate Change
   While acknowledging several University Centers and varied initiatives actively addressing challenges related to climate change, the Committee recommends increased interdisciplinary coordination among University personnel, offices, and programs focused on climate science, on the impacts of and adaptation to climate change, and on the transformation of our energy system. One way to do this could be establishing a central office to coordinate policy and programs to identify and increase engagement from all divisions, while promoting interdisciplinary research.

3) Commit our Campus to Significant Emission Reduction Targets
   By transitioning away from fossil fuels for energy, the University should set and meet significant carbon emission targets over the near-term. Much has been accomplished in this realm, but recent reductions are still below what is needed to contribute significantly to the slowing of future warming. Facilities Planning and Management (FPM) should also consider observed and projected climate change impacts and co-benefits of adaptation and mitigation in infrastructure plans.

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4) **Promote Non-Fossil Fuel Investment Opportunities**

The Committee considered the divestment campaign and could not reach consensus on this course of action, but a majority advise against divestment, primarily because it could be divisive and distract from more constructive actions. (See Appendix B) There was clear consensus, however, on the need to offer opportunities for donors to invest in non fossil-fuel companies. The Committee strongly recommends that the Faculty Senate urge the UW Foundation to create this option for donors. The Committee further recommends having climate change challenges and opportunities as a central theme of the next capital campaign.

These recommended Future Actions are further elaborated upon at the end of this report.

**I. INTRODUCTION**

The University Committee established the Ad Hoc Committee on Climate Change and Fossil Fuels on June 19, 2013. The UC charged the committee in the following language:

As you know, at its meeting of 6 May, the Faculty Senate voted to charge the UC with forming an *ad hoc* committee to explore whether the senate should take a position on fossil fuel use and climate change…

We have selected members who bring the broad range of views and expertise required to analyze this complex topic.

You are charged, with your colleagues on this committee, to determine what position, if any, the Faculty Senate should take with regard to fossil fuel use and climate change. In order to do so, you are encouraged to examine the range of possible viewpoints and positions that may exist in our campus community, solicit input from other experts on campus, and recommend a suitable position, if any, that represents our campus faculty.

Taking its charge seriously, the committee met several times; reached out to various constituencies of the campus; held two “Town Hall” meetings open to the campus and public; shared knowledge, data, and published materials among ourselves; and conducted interviews with many sources with a stake in the issue. Our committee meetings involved broad discussion and mutual respect. Eventually we assigned each member of the committee primary responsibility for a section of the report, subject to editorial input from the other members.

Members of the committee brought different professional experience, expertise, and values to the table. That said, we were able to form basic consensus on key aspects of our charge, with exceptions to be noted below.

We felt obligated to provide our own views and conclusions; but we realize that given the empirical and normative complexity of many issues in this domain, any conclusions we offer in this report are by their nature open to discussion and debate. In the end, we strove to provide the best judgment we could muster in this policy arena. We expect and hope the Senate will continue the discussion in the spirit of the “continual and fearless sifting and winnowing of ideas by which alone the truth can be found.”

*The Intellectual and Normative Assumptions that Frame this Report*

Before we summarize our findings in this introductory section, let us say something about the intellectual and normative standards that frame and guide this report. Four points stand out in this regard.

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First, we recognize the need to acknowledge the problem of climate change, and the University’s moral commitment to make appropriate choices and policies to deal with it. Our report addresses the science and human impact of climate change based on the best available knowledge, as well as the energy and risk factors associated with the problem. The University of Wisconsin is a national and international leader in the academic world, so our response can contribute to the state’s and the nation’s understanding and decisions regarding climate change. We also recognize our distinct moral charter as an institution dedicated to knowledge and thought, and that this distinct charter influences how we should proceed in this often highly charged arena of policy.

Accepting this obligation, the next set of questions concern the best ways to proceed.

Second, true to our charge from the UC and our understanding of the institutional norms of the University, we have striven to be duly respectful all relevant viewpoints in this domain, and to take them into consideration when recommending what the University should do to deal with climate change. Policy often entails choices and tradeoffs that affect competing or conflicting interests and norms. This has always been the case in environmental policy, which often calls for considered and sometimes contested judgments about such things as the health and economic effects of environmental phenomena and human activity; the status of actions and inactions on the future; the effects of the interactions of multiple phenomena; and the tradeoffs of such interests as economic well-being and health.

Another important issue in this respect is the relationship between means and ends. It is one thing to agree on an objective. It is another thing to decide the best means to achieve that objective. Should a problem be dealt with in an urgent fashion, or more incrementally? Should one or a small number of means be deployed, or should we encourage a variety of means? To what extent should practicality and skepticism influence the choice of means? Such questions often have (explicitly or implicitly) normative and political implications. They also often call for risk assessment and analysis.

The third set of concerns deals with the obligations of the University as an institution in our society with its own distinct moral and intellectual charter. In making recommendations regarding University actions and commitments below, we have been guided by what we consider the legitimate purposes of the University. Our role is to provide reasoned judgment based on the best available evidence, and to act in a manner consistent with intellectual standards and freedom. We must avoid being and appearing to be politicized, and we must eschew demonizing those who disagree with us in good faith. Accordingly, the committee has spoken with many stakeholders who have different views regarding certain policies.

Fourth, in accordance with the above, the thrust of our recommendations addresses the University’s own actions. Numerous stakeholders with whom we spoke emphasized the need for us to get our own house in order rather than to preach to the outside world how it should behave. Many others stressed the outreach mission of the University, arguing that we should as engage, speak, write and act as forcefully as possible, given the enormous nature of the threat. To be sure, getting our own house in order will naturally have implications for the outside world. But we cannot control how others view us. What we can do is to strive to make our actions consistent with the problems we perceive, and to act in accordance with our guiding principles as an institution.

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II. THE SCIENCE OF CLIMATE CHANGE

Climate science is regularly reviewed by the IPCC, a body established by the UNEP and the WMO in 1988. The IPCC was endorsed by the UN General Assembly in the same year. This body is charged “to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.”

One hundred and ninety five countries are members of the IPCC. Scientists from these countries volunteer their time to assess the science, draft reports, and extensively review others’ work. In the most recent report, the fifth assessment report (AR5), this review extended to any organization or person who wished to comment, irrespective of their expertise. For IPCC Working Group One (WG1), charged with assessing climate science, 259 authors from 39 countries contributed to the report, and a total 54,677 comments were received and addressed in the preparation of the report. The Summary for Policy Makers for IPCC AR5 WG1 was released on 27 September 2013. This is the best available assessment of recent trends in the physical climate and the best estimate of the future climate state, and thus we base the science summary herein largely on this report.

What has been observed?

Multiple independent datasets indicate that the Earth warmed 0.85 [0.65 to 1.06] °C (1.5 [1.2 to 1.9] °F), from 1880 to 2012, and each of the last three decades have been statistically significantly warmer than the decade prior to it (Figure SPM.1a, IPCC AR5 WG1 2013). Warming is clear over all the continents, except Antarctica. Warming is evident over the majority of the ocean, except in the subpolar North Atlantic where there has been slight cooling and in the polar oceans where data are too sparse to quantify a trend. (Figure SPM.1b, IPCC AR5 WG1 2013)

As water warms, it expands. The ocean has absorbed at least 93% of the heat accumulating in the climate system, and thus sea level is increasing. Multiple lines of evidence indicate that sea level rose 1.7 [1.5 to 1.9] mm/yr between 1901 and 2010, with this rate progressively increasing over time. The rate for 1993 to 2010 was 3.2 [2.8 to 3.6] mm/yr. (Figure SPM.3d, IPCC AR5 WG1 2013)

The warming of the climate has been observed to be particularly enhanced at high Northern latitudes, i.e. in the Arctic. The decline of Arctic sea ice has been a dramatic impact of the warming, and is also acts as a positive feedback to warming since the white, reflective ice is being replaced by dark water that absorbs solar radiation far more effectively. The decline of Arctic sea ice has been most dramatic at the time of the summertime sea ice minimum (July to September). Based on multiple observational datasets, the best estimate for summer Arctic sea ice decline is 9.4 to 13.6% per decade from 1979 to 2012. (Figure SPM.3b, IPCC AR5 WG1 2013)

What has driven these observed changes?

“Human influence on the climate system is clear.” (IPCC AR5 WG1 SPM 2013)

The driver for the warming climate is dominantly anthropogenic emissions of CO2 from the burning of fossil fuels and the clearing of land. Emissions of other gases make smaller contributions individually, but together are important contributors. Human emissions of aerosols both warm and cool the climate, with the net effect likely being cooling. (Figure SPM.5, IPCC AR5 WG1 2013)

1 http://www.ipcc.ch/organization/organization.shtml#.UlhfJhbTy44
The atmosphere insulates the surface of the Earth, protecting it from a loss of heat to space. Without this “greenhouse effect”, the Earth’s average temperature would be far below the freezing point of water. CO₂ and the other gases mentioned above are known as “greenhouse gases” because they are the molecules that capture the heat energy and re-radiate it back down to Earth. This “greenhouse effect” is a natural process, critical to life as we know it on Earth. Humans are now adding additional CO₂ and other greenhouse gases to the atmosphere (Figure SPM.4a, IPCC AR5 WG1 2013), and this is enhancing the insulating capacity of the atmosphere. With this added insulation, the Earth is warming. The observations, summarized above, unequivocally support this basic physical understanding.

What is projected for the climate of the 21st century?

The future climate state depends largely on the amount of greenhouse gases that humans emit to the atmosphere, and this quantity is obviously not known precisely. Thus, scenarios for potential future emissions have been developed to encompass the likely spread of possibilities for human behavior (IPCC: Moss et al. 2008). We focus on a “business as usual” emission scenario (RCP8.5) because current emissions by humans are most consistent with this trajectory and the political environment for emissions reductions is not currently promising.

With emission scenarios, the state of the climate can be estimated using computer models. These models are complex computer codes that embody scientists’ understanding of the physics, chemistry and biology of the Earth. Throughout their development, these models are carefully checked for their ability to represent the climate of the recent past so as to assure that they are reasonable. They are the best tool for projecting how the complex climate system will respond to the forcing of greenhouse gas emissions.

Independent of the assumed scenario, it is projected that Earth will warm between 0.3 and 0.7 °C (0.5-1.3°F) for 2016-2035. Under the RCP8.5 scenario, Earth will warm between 2.8 and 4.8 °C (5.0-8.6 °F) for 2081-2100 relative to the 1986-2005 average (Figure SPM.7, IPCC AR5 WG1 2013). Under the same scenario, global sea level will rise between 0.52 and 0.98 m for 2081-2100 relative to the 1986-2005 average (Figure SPM.9, IPCC AR5 WG1 2013). The Arctic is likely to be practically ice-free in September prior to 2050 (Figure SPM.7, IPCC AR5 WG1 2013).

What is expected for Wisconsin?

The Wisconsin Initiative on Climate Change Impacts (WICCI) has used climate model output from the previous IPCC assessment (IPCC 2007) to project the impacts of climate change for Wisconsin. In their 2011 report, they find that by mid-century (2050), Wisconsin’s annual average temperature is likely to increase by 6-7°F (3.3-3.9 °C). This warming will be greatest in the winter and least in the summer. Despite lower mean warming in summer, the number of summer days exceeding 90°F (32 °C) is projected to increase by two-three weeks across the state. More precipitation should fall in Wisconsin by mid-century, with more of this precipitation falling in large storms. The amount of freezing rain, as opposed to snow, should increase significantly. The WICCI report (WICCI 2011) outlines a host of additional impacts expected for the State.

Uncertainty

There is no uncertainty about the absorption of long-wave heat radiation from Earth by CO₂ and the re-radiation of this energy back toward the Earth. This process has been understood since the mid-1800s (Fourier 1824, Tyndall 1861). With only pencil and paper, Arrhenius (1896) identified that a doubling of the

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atmospheric CO₂ as likely to cause a 3-4 °C global temperature rise. Modern estimates suggest that if the only change to the climate were a doubling of CO₂, the temperature increase would be 1.2 °C (Knutti and Hegerl 2008).

Of course, there are feedbacks that modify this direct response and it is of great interest to have a more precise estimate of the temperature sensitivity of the climate system to increased atmospheric CO₂. The effects of all anthropogenic forcings, including non-CO₂ greenhouse gases, should also be included. Yet despite these complexities, the basic fact remains very clear that humans have increased atmospheric CO₂ by 40%, to 391ppm in 2011 over 278 ppm in 1750, and the global mean temperature has increased 0.85 °C, in line with the simplest estimates. This warming is fully consistent with the basic physics that have been understood for 150 years, and is a critical underpinning to the IPCC statement “Human influence on the climate system is clear.” (IPCC AR5 WG1 SPM 2013)

Key uncertainties in climate system are the focus of substantial scientific research because there do remain important questions with respect to how fast the climate will warm, what the total warming response will be for a certain amount of total CO₂ emitted, and whether the climate system could change rapidly and unexpectedly (Schiermeier 2010, Alley 2000).

One set of questions surrounds the impact of human-produced atmospheric aerosols that can either absorb or reflect sunlight depending on their composition, and can also modify clouds. The IPCC finds that the net effect of aerosols has been to cool the Earth since 1750, but with significant remaining uncertainty as to the impacts on the observations to date. Given the lack of precise understanding of aerosol and cloud processes, the challenges of encoding the very small scale physics (microscale) occurring into model with resolution of 10s of kilometers, and uncertainty about human emission of aerosols, it is difficult to project the impact that aerosols will have in the future. (IPCC AR5 WG1 SPM 2013)

There is also uncertainty in the carbon cycle. Presently, the ocean and the land biosphere together absorb approximately 50% of anthropogenic CO₂ emissions to the atmosphere, and are expected to continue to absorb some CO₂. However, the rate of this uptake will likely be modified by the changing climate. The IPCC indicates that the likely direction of this change will be toward lesser uptake and, thus, more CO₂ remaining in the atmosphere. One particular area of large uncertainty in the carbon cycle is in the high-latitude permafrost. The IPCC indicates that it is “virtually certain” that permafrost will thaw, but at the same time, there is low confidence in the magnitude of the CO₂ and CH₄ emissions that should occur with this thawing. This is just one of many important potential positive feedbacks (leading to more warming) in the climate system that needs better understanding. (Chapter 6, IPCC AR5 WG1 2013)

The cryosphere is another realm of substantial uncertainty, and is of great importance to future projections of sea level rise. The IPCC states “The available evidence indicates that global warming greater than a certain threshold would lead to the near-complete loss of the Greenland Ice Sheet over a millennium or more, causing a global mean sea level rise of about 7 m.” However, at the same time when it comes to quantifying this range, the IPCC states “We are unable to quantify a likely range.” (Chapter 13, IPCC AR5 WG1 2013) With a worst-case sea level rise estimate of 1m by 2100 by the IPCC (Figure SPM.9, IPCC AR5 WG1 2013), and 7m of sea level locked in Greenland, understanding the vulnerability of the Greenland Ice Sheet to climate warming is critical. Unfortunately, the state of the science is that the basic physics of how glaciers melt is poorly understood because of limited research on the issue. Due to this limited knowledge, there is significant scientific controversy about how fast Greenland will melt by 2100. Some have suggested that the IPCC estimate of is far too conservative, and that it could contribute to up to a 5m sea level rise by 2100 (Hansen and Sato 2012).

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Scientists continue to deal with uncertainties by conducting research programs and field studies in order to understand the basic physics. Then the best knowledge has been embodied into the climate developed by many large modeling centers across the globe. These models are then tested against the historical record to make sure they are reasonable — but the fit is never perfect given both uncertainty and the natural internal variability of the climate system (e.g. Figure TS.12, IPCC AR5 WG1 2013). These models have then been forced with plausible future scenarios for human CO\(_2\) and non-greenhouse gas emissions. As shown clearly in the IPCC results, the climate model results do not all agree precisely. These differences are largely due to model differences underlain by uncertainty in the physical, chemical and biological processes of the climate system (e.g. Figure SPM.7, IPCC AR5 WG1 2013). Despite the uncertainty, the directions of trends are undoubtedly consistent — i.e. warming, sea level rise, sea ice retreat, etc. These projections are the best consensus assessment of the likely future state of the climate system.

The basic physics of the Earth’s climate response to increased atmospheric CO\(_2\) is very clear and the effect of these physics is clearly evident in observations across the Earth system. There is no doubt that these physics will continue to operate in the future. Yet there is uncertainty, as must be expected in the gloriously complex Earth System that humans have only begun to study and understand. Nonetheless, it must be emphasized that this uncertainty is, in no way, large enough to obscure the very simple underlying physics, and its ability to explain past observations and to underpin reasonable projections for the future.

### III. FOSSIL FUEL USE AND CLIMATE CHANGE: HUMAN IMPACT

Fossil fuels have had enormous positive impacts on human civilization. But side effects from burning fossil fuels are significant and increasingly negative. While it’s true, for example, that a longer growing season has some advantages, impacts such as heat waves, extreme weather events and flooding are disruptive to society. Many features of our built environment were designed during the stable climate conditions of the 20\(^{th}\) century, and may not easily withstand predicted increases in heavy precipitation and sea level rise.

Climate change further intensifies threats to human health as follows:

- Heat related illnesses and deaths
- Death and disease due to increased flooding
- Respiratory disease (asthma, allergies and chronic lung disease) related to increased emissions, wild fires and air pollution
- Waterborne diseases and injuries from extreme precipitation and flooding
- Vector-Borne diseases related to milder winters and hotter summers

Certain groups of people are more vulnerable to these health impacts, such as the elderly, children, the poor, and the sick. Others are more vulnerable because of where they live, including people living in floodplains, coastal zones, and urban areas.

The human impact of climate change in Wisconsin is well documented in the first report of the Wisconsin Initiative on Climate Change Impacts (WICCI). Based on the research in this report, nine place-based stories have been produced in video format and made available on-line at [http://climatewisconsin.org/](http://climatewisconsin.org/). These include impacts on fly-fishing, extreme heat, forestry, farming, sugaring, phenology, the Birkebeiner ski race, Great Lakes shipping, and ice fishing. Virtually everyone in Wisconsin has already experienced impacts of climate change.
The National Climate Assessment (NCA) documents numerous examples of climate-related impacts on people across the United States. In Alaska, for example, whole communities must relocate due to the combination of melting ice, sea level rise and thawing permafrost. Across the Southwest, drought and wildfires are having huge impacts on people and communities. Since the 1970’s the average number of fires over 1,000 acres each year has nearly quadrupled in Arizona and Idaho, doubling elsewhere.

In the Pacific Northwest, changes in the timing of stream flow related to changing snowmelt are reducing water supply for competing demands and causing far-reaching socioeconomic consequences. Across the Great Plains, rising temperatures are leading to increased demand for water. The Southeast U.S. is also experiencing decreased water availability, while simultaneously being exceptionally vulnerable to extreme heat events. Every year, 25-35 square miles of Louisiana coastline disappears due to a combination of subsidence and global sea level rise; land becomes marsh and the marshland slowly submerges.

In the Midwest and Northeast, a warmer atmosphere often means too much water as seen from the following NCA graphs depicting heavy rainfall events across the United States. Even in areas with lower average rainfall, heavy precipitation events can be devastating, as witnessed in Colorado earlier this year.

There is a strong connection between heavy rain events and pollutants entering the Great Lakes, which has significant ramifications for economic productivity, public recreation and human health. Events such as the 1993 Milwaukee cryptosporidium outbreak, in which 400,000 people became ill from drinking contaminated water, could become more common. Declines in Great Lakes ice cover is lengthening the commercial navigation season, bringing both positive and negative results. This is true for the Arctic as well where melting sea ice has resulted in a dramatic increase in marine shipping and fossil fuel exploration, which can provide employment and support the economy, but could also lead to additional greenhouse gas emissions, threatening our future.

3 climate.gov/news-features/featured-images/underwater-land-loss-coastal-louisiana-1932#.Uo0_MhC0d24

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Across North America, Europe and the rest of the world, hundreds of millions of people are experiencing numerous and largely negative impacts from climate change. Communities in developing countries suffer the greatest impact, as they are typically more vulnerable and less resilient. For a poor family that eats the food they grow, a flood or a drought might mean hunger, devastating illness, or homelessness. As noted by the IPCC, the character and severity of impacts from climate extremes depend not only on the extremes themselves but also on exposure and vulnerability. A timely example of this would be the low-lying islands of the Philippines where Super Typhoon Haiyan recently made landfall, inspiring the following statement by Philippine Commissioner Yeb Sano with examples of how climate change is impacting people’s lives:

“To anyone who continues to deny the reality that is climate change … I dare you to go to the islands of the Pacific, the islands of the Caribbean and the islands of the Indian ocean and see the impacts of rising sea levels; to the mountainous regions of the Himalayas and the Andes to see communities confronting glacial floods, to the Arctic where communities grapple with the fast dwindling polar ice caps, to the large deltas of the Mekong, the Ganges, the Amazon, and the Nile where lives and livelihoods are drowned, to the hills of Central America that confronts similar monstrous hurricanes, to the vast savannas of Africa where climate change has likewise become a matter of life and death as food and water becomes scarce. Not to forget the massive hurricanes in the Gulf of Mexico and the eastern seaboard of North America. And if that is not enough, you may want to pay a visit to the Philippines right now.”

There is of course no way to accurately predict the full future impact of global warming and climate change. There are large uncertainties in some areas of climate prediction, such as the speed at which the polar ice caps will melt, the rate of sea level rise, and the frequency and severity of extreme weather events. However, as authoritative reports by the IPCC and the National Research Council make clear, the nature and severity of impact will depend largely on the ability of human societies to reduce greenhouse gas emissions from fossil fuel use.

The potential range of climate change impact on human societies runs from highly challenging to absolutely horrifying. Already, more than one billion people are threatened by food scarcity and/or lack of access to potable water each year. As populations increase and resources become more scarce, some degree of social disruption and conflict is virtually inevitable, even without adversities brought on by climate change. Adding in climate-related heat stress, drought, severe weather events, erratic precipitation, flooding and sea level rise may tilt the equations governing social stability in terrible directions. If, for example, melting of the northern permafrost and Greenland and Antarctic ice shields continue to accelerate, the resultant sea level rises may outpace the ability of island and coastal populations to adapt, migrate and continue their societies. Many of the world's most populous cities lie at the ocean’s edge, where typhoons and hurricanes combine with rising seas to seriously threaten life-sustaining infrastructure. If predicted multi-meter sea level rises occur within decades rather than centuries, many low-lying cities will need to be radically restructured or partially abandoned, providing serious challenges to social stability.

Whether, how, and to what extent human civilization can adapt to changes resulting from climate change is difficult to forecast. As the science has made increasingly clear, some level of global warming and climate change is inevitable, and will continue to affect human civilization far into the future. Clearly, however, the magnitude and rapidity of challenges wrought by climate change will both threaten human societies and limit our ability to adapt. The greatest single factor influencing these processes is the quantity of greenhouse gases that will be emitted over the coming years. Major reductions in the combustion of fossil fuels and radical restructuring of energy systems are urgently required if we hope to mitigate the negative impacts of climate change on Wisconsin, the United States, and the world. The University of Wisconsin could play an important and positive role.

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IV. ENERGY POLICY AND CO-BENEFITS

There are certainly large benefits to the use of fossil fuels. They have provided a primary driver of economic growth in developed countries for the past 200 years. They have been essential to the lifting of several hundred million people out of poverty over the past two decades in rapidly developing countries (Karekezi, McDade et al. 2012). But there are also substantial costs that in the longer term outweigh these benefits. Recent research also shows that benefits exceed costs even in the near term when co-benefits of pollution abatement, such as improved health, are considered (West, Smith et al. 2013).

Despite this well-established set of results, addressing climate change remains a difficult problem. It raises the question of how societies should address a truly global public goods problem, under deep uncertainty about future impacts and costs to address, with diverse perspectives about tolerance for risk time preferences over the course of several decades.

A first comment is to appreciate the scale of the transformation required to stabilize emissions, never mind stabilize concentrations, of greenhouse gases. Basic changes in the way the world produces and consumes energy are required to affordably stabilize the climate while accommodating the billions of individuals who aspire to use more energy services. Within a few decades greenhouse gas emissions need to be less than a quarter of today’s levels while demand for energy services grows and roughly doubles (Steven, Long et al. 2013). Incremental improvements in efficiency of existing technologies and costs reductions in low-carbon technologies are insufficient (Hoffert, Caldeira et al. 2002). To put it another way, the carbon intensity of the world economy (tCO2/$GDP) needs to fall at 5%/year for several decades (Nemet 2013). Looking at the last 40 years across OECD and BRIC countries, there are only six cases in which a country decarbonized at that rate for a decade or more: China’s modernization in the 1980s; Russia, Poland, and Slovakia post-communism; and Sweden’s and France’s adoption of nuclear power in the 1980s. Whatever set of policies are put in place to address climate change needs to be on par with these historic transformations, but applied to the entire world and sustained for decades. Incremental change to the current energy system is insufficient to address climate change without incurring substantial risk of widespread suffering.

A consequence of the scale of the transformation required is that current methods of combusting fossil fuels for heat, power, and transportation will be limited to very high value niche markets in which substitutes are not available. It may be possible to capture CO2 at the source of emission so that fossil fuels can be used and the emissions stored underground via carbon capture and storage (IPCC 2005). But current methods of decarbonizing fossil fuels—such as substituting gas for coal and improving the efficiency of power plants—are insufficient. Thus in the not too distant future, Wisconsin, the U.S., and other countries face the prospect of phasing out their use of fossil fuels, possibly in combination with massive deployment of carbon capture and storage technology.

Co-benefits are becoming an increasingly discussed aspect associated with phasing out fossil fuels (Nemet, Holloway et al. 2010). Reducing fossil fuel consumption provides an array of other benefits to society in addition to reducing future damages from climate instability. Most important, it would improve air quality and consequently reduce hospitalizations, avoid health care costs, and increase quality of life for those exposed to ground level ozone and particulate matter. These benefits are non-trivial. They are highest in developing countries where air quality is currently very poor (West, Smith et al. 2013). But these co-benefits exceed pollution abatement costs even in developed countries where air quality is generally much better than it was 40 years ago. Benefits would be substantial in Wisconsin where several counties are not in attainment of federal air quality standards (Spak and Holloway 2009). Several other benefits of reducing consumption of fossil fuels have been studied and valued including: avoiding macro-economic shocks associated with

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price volatility; reducing expenditures associated with protecting sea lanes; and improving negotiating positions on non-energy issues (Nemet and Kammen 2007). There are near term and local benefits of efforts to reduce fossil fuel use. Crucially, research has shown that they are substantial and generally in excess of the costs to reduce pollution.

Some prominent companies that produce or rely heavily on fossil fuel are now accepting limits or constraints on carbon production. A recent New York Times article, for example, reveals how many major oil companies are beginning to support policies that restrict carbon emissions, especially the growing movement to tax carbon emissions or production. A report by the data company CDP discusses how at least 29 companies, including Exxon Mobile, Wal-Mart, American Electric Power, Conoco Philips, Chevron, BP, and Shell are incorporating a price on carbon into their long-term financial plans. [http://www.nytimes.com/2013/12/05/business/energy-environment/large-companies-prepared-to-pay-price-on-carbon.html?_r=0](http://www.nytimes.com/2013/12/05/business/energy-environment/large-companies-prepared-to-pay-price-on-carbon.html?_r=0)

Until now, it appears that the investments that oil/gas/coal companies are making in non-fossil energy are trivial relative to the size of the investments they are making in fossil fuels, probably on the order of 1% at most. These investments, while potentially appearing small in terms of percentage, are not trivial relative to other sources of investment for non-fossil energy. So these investments are potentially important, particularly in a university setting in which tens of millions can go a long way. To wit: Stanford (ExxonMobil), Princeton (BP), and Berkeley (BP) have received significant investments in non-fossil energy (Washburn 2010). The problem, however, is that these non-fossil investments seem to come and go, possibly in part because they do not comprise the companies’ core business and detract from earnings and the focus each company. For example, BP sold off its solar business in 2011. Many oil companies were burned in the late 1970s and early 1980s with their investments in alternative energy and that memory seems to play an important role today (Miller 2013), making them risk averse and with a preference for keeping these investments small if at all.

V. RISK ANALYSIS

Debates over what (if anything) to do about the issue of climate change often end up polarized between two relatively extreme viewpoints. On the one hand, climate “skeptics” often claim that “The scientific base for a greenhouse warming is too uncertain to justify drastic action at this time” (Singer et al., 1992). On the other hand, proponents of action to prevent climate change often cite some version of the precautionary principle—e.g., “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically” (Wingspread Conference, 1998).

Both of these arguments may seem compelling, and in fact they have strong historical roots; for example, the precautionary principle is closely related to the mini-max principle (“minimizing the possible loss for a worst case…scenario”; Wikipedia). However, both of these decision rules or principles are also wrong (or at least far too limited), and can easily lead to poor decisions in many real-world cases. In practice, we often do NOT wait for uncertainty to be resolved before taking drastic action, if the consequences of inaction may be especially severe; consider for example prophylactic mastectomies for women at risk of breast cancer (but unsure about whether they will actually develop breast cancer). Likewise, however, many risks to human health and the environment are accepted every day, often without significant preventive measures; consider dashing across a busy street to avoid missing a bus, or the widespread use of the automobile, which kills hundreds of thousands of people per year (Augustine, 2002).

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By contrast with these simple but polarizing decision rules, decision theory (e.g., Hammond et al., 1999) tells us that, rather than focusing exclusively on uncertainty (as the skeptics often do) or on worst-case scenarios (as proponents for action on climate typically do), each outcome should in fact be weighted by its probability. So, for example, we may take into account the POSSIBILITY that fossil fuels may not lead to climate change, or that climate change may have beneficial rather than deleterious effects, without being precluded from taking action on climate change if we think the probability of undesirable effects is high. Such a decision rule is not as easily “fooled” into recommending poor decisions, because it looks at all aspects of the problem at hand, and combines them in a logical way.

Thus, uncertainty about possible consequences does not preclude action—but it MIGHT argue for actions that keep one’s options open. For example, Lauren Azar (2009) of the Public Service Commission of Wisconsin challenged listeners on campus to “Assume that in the near future (6-18 months)... you are going to have between 5 and 30 children moving into your house. But, you don’t know the specifics. Are you going to start making plans today?” Someone in such a situation would not necessarily prepare for the worst (sell the house and buy a hotel or orphanage), but might well invest in preparations that provide greater flexibility in the future (getting the house READY to sell in case it turns out to be necessary, saving more money in case a small hotel is needed).

Yet another concept needs to be considered, in addition to weighting consequences by their probabilities—namely, the severity of a given consequence (e.g., amount of temperature rise, or carbon dioxide in the atmosphere) may be highly nonlinear. This concept goes by the name of “utility theory” in economics and decision analysis. On the plus side, many people feel that winning $10 million, while clearly better than winning $1 million, is much less than 10 times as good; the first $1 million would provide the greatest benefit, followed by (nonlinear) diminishing marginal returns thereafter. On the down side, the same person who would be delighted by the prospect of winning $1 million may find that losing even just $100,000 would be enough to cause a personal bankruptcy, and great emotional distress! From this perspective, if climate change is anticipated to have catastrophic results, we are not only justified, but perhaps even obligated, to put disproportionate weight on that outcome, relative to less severe or dramatic outcomes (e.g., the possibility that climate change may be benign or innocuous). As Heal and Kristrom (2002) state, “...even though an event is very unlikely, if it is costly and we are risk averse we may invest significantly in avoiding it or insuring against it. By way of illustration, our houses rarely burn down, yet most of us insure them against this event on terms that are actuarially unfair.”

Heal and Kristrom further point out that action to prevent climate change will be particularly worthwhile if “many of the changes in climate, and changes in the natural environment driven by climate change [e.g., species extinctions, reversal of the Gulf Stream] will be irreversible... If climate change or its consequences are indeed irreversible and there is a chance of learning more over time, then there may be a real option value associated with preserving the present climate regime, i.e. with freezing all actions that are likely to contribute to climate change.” They also note that time lags in both climate change and the effects of carbon reduction may make it necessary to take action early (possibly well before the likelihood of severe consequences is known), to prevent the possibility of undesirable outcomes in a few decades. In another context (prevention of animal disease), Jin et al. (2009) note that prevention will be especially important (compared to post-disaster response) when the likelihood or consequences of a disaster are high, when post-disaster response is likely to be costly and/or ineffective relative to prevention, and when the disaster unfolds quickly enough to make post-disaster response impractical (a factor that is related to irreversibility).

Another important aspect of most real-world decisions (including decisions about climate change) is that they typically involve multiple attributes that must be traded off against each other, rather than just a single
attribute. So, divestment proponents should ideally be considering not only the possible benefits of divestment for the environment, but also the possible costs (e.g., to the endowment of the university, or to our political support among Wisconsin legislators). Likewise, climate skeptics should be considering not only the possible adverse economic impacts of overly drastic action on climate, but also the environmental impacts of insufficient action.

Finally, but perhaps of the greatest importance, most decision problems involve not just two possible choices (e.g., divest or not, take action or not), but multiple choices. In fact, Hammond et al. (1999) note that “people don’t tend to think a lot about their decision alternatives… they assume they know the options open to them. Too many decisions, as a result, are made from an overly narrow or poorly constructed set of alternatives.” In the context of climate change, Nordhaus (2013) argues that options for adaptation to climate change “may be part of a strategy of risk management,” but “cannot completely offset the damaging impacts of carbon accumulation and climate change.” By contrast, Stern (2007) emphasizes the importance of taking strong and early steps to reduce carbon emissions, but has sometimes been criticized for underestimating the potential benefits of adaptation.

VI. WHAT THE UNIVERSITY HAS BEEN DOING

The University has made significant efforts to address climate change through investments in infrastructure that improve energy efficiency, educational programs that develop awareness and promote change in human behavior, research into technologies and strategies that reduce energy consumption and greenhouse gas emissions, and outreach that shares knowledge and influences policy.

Changes to campus infrastructure implemented by Facilities Planning and Management, including the We Conserve Program, have resulted in appreciable energy savings and corresponding reductions in greenhouse gas emissions. For example, the University constructed the state-of-the-art West Campus Cogeneration Facility, which generates steam for heating and electricity, and reconstructed the Charter Street Power Station with natural gas as the fuel rather than coal. These plans generate electricity and steam more efficiently, an use fuels that are less carbon intensive. New buildings on campus are designed and constructed with energy efficiency and sustainability as a priority. For example, the Wisconsin Institutes for Discovery employs state-of-the-art heating and cooling systems, including a highly efficient geothermal exchange system. New buildings generally are designed with a LEED Silver rating as a minimum expectation. Five new buildings have received LEED Gold or Platinum certification as sustainable buildings, and nine new buildings currently are undergoing LEED certification.

The We Conserve campaign offered by Facilities Planning and Management has made major investments in renovations that reduce energy consumption and water waste, which results in corresponding reductions in greenhouse gas emissions. Reducing water waste is an important element in energy conservation, as water distribution and treatment is the sixth largest source of energy consumption in the US. The energy efficient lighting, occupancy sensors, modern ventilation systems, and low-flow bathroom fixtures employed in renovations have had dramatic impacts on energy and water consumption and greenhouse gas emissions. From FY06 through FY12, energy use on campus decreased by 12.5% and water use dropped by 41%, even though total floor space in campus buildings grew by 16.4%, On a per unit area basis, energy consumption decreased by 25% between FY06 and FY12 (personal communication, 2013, Faramarz Vakili, Director of Sustainability Operations). These changes have resulted in a reduction of 125,000 Mg of CO₂,eq annually.

The University has also hosts a growing portfolio of courses and programs addressing sustainability and climate change. Within the last five years, a new Environmental Studies degree was launched by the Nelson
Institute for Environmental Studies to complement the highly successful Environmental Studies Certificate, the College of Agriculture and Life Sciences and the College of Letters and Science developed and began offering undergraduate degrees in Environmental Science, and the Wisconsin Energy Institute developed and began offering the Certificate in Energy Sustainability through the College of Engineering. The Nelson Institute for Environmental Studies and the Office of Sustainability have developed a campus-wide undergraduate Sustainability Certificate, and anticipate enrolling the first cohort of students in 2014. This new certificate program address climate change in the curriculum, and engages students in practical experiential learning activities that involve campus sustainability efforts in operations. These new programs, which include curriculum related to climate change, complement existing programs in energy, climate, and environment on campus that have been offered historically by a variety of schools and colleges. A partial list of courses directly related to climate change issues is in Appendix A.

Climate issues are also being tackled directly and indirectly by the University’s research enterprise and outreach efforts. Examples of centers for research activity include the Center for Climatic Research (CCR) and Center for Sustainability and the Global Environment in the Nelson Institute for Environmental Studies, the Great Lakes Bioenergy Research Center in the Wisconsin Energy Institute, the Engine Research Center and the Recycled Materials Resource Center in the College of Engineering, and the Center for Integrated Agricultural Systems and the Wisconsin Institute for Sustainable Agriculture in the College of Agriculture and Life Sciences. The Wisconsin Initiative on Climate Change Impacts (WICCI) has built strong partnerships between UW-Madison scientists and public and private stakeholders engaged in assessing vulnerability to climate change and increasing resilience.

While these activities in facilities, education, research, and outreach at the University are significant, the urgency associated with climate change requires bolder and broader actions that will result in transformative advances that are actionable within the next decade. The University, with its history in conservation and reputation for excellence in environmental studies, engineering, and policy, has an obligation to lead in developing solutions to climate change. These solutions may involve technology, but will need to address social and economic issues, including changes in human behavior. Broader and deeper investments in traditional and non-traditional initiatives will be required to achieve transformative advances.

VII. FUTURE ACTIONS

To enhance a position of leadership on the issue of climate change in a manner befitting a leading institution of higher education, we recommend a set of policies the University should adopt or consider adopting. We do not mean for these recommendations to be either definitive or non-controversial. We present them in the spirit of beginning the campus-wide discussion and deliberation about how to proceed.

1. Education and Outreach, Formal and Informal.

   o Education and Outreach. The University should promote interdisciplinary and interconnected research on climate change. Much world-class research is already undertaken by our faculty, staff, and students on climate science, on the impacts of and adaptation to climate change, and on the transformation of our energy system. But this research is often dispersed across campus, only loosely connected, and often is incremental. As a result, the whole may currently be less than the sum of its parts. Given that these parts are in place, the University is in a unique position to establish itself as a leader in this field. The University should promote integration of existing intellectual resources and targeted new investments in the science, economics, and policy of climate change. The following is a partial list of things that could be considered:

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- Develop a Climate Knowledge Project of experts for peer-to-peer sharing of knowledge and public interchange
- Use the Go Big Read program as a vehicle to familiarize incoming students with the relevant and competing issues, including reading on climate change and the use of forums and invited speakers
- Provide further educational opportunities for all students, faculty, and staff by fostering innovative education programs through the Wisconsin Idea and Outreach and Extension
- Expand existing course offerings, making sure to cover such matters as Climate Science, Energy Policy, Economic Policy Issues, and Politics and Government Regulation

  o **Curricular Changes.** The University should also make curriculum changes that ensure that graduates from this University have a meaningful opportunity to have a basic understanding of climate change. Democracy requires an informed citizenry, and climate change is one of the defining issues of the current and future generations. We understand the problems associated with the University as an entity dictating curricular matters, so we are wary of endorsing a required course in this area. Strong claims could also be made about other curricular topics involving citizenship and the national interest. (For example, what about a requirement that all students take a basic course on the constitutional system, out of which national climate policy must emerge?) And the policy complexity of climate change, including the tradeoffs mentioned above, render mandating a single course open to question. But the University should give serious thought to how our teaching mission can make students more aware of the problems and issues associated with climate change.
  
  o Make sure a sufficient enrollment space is available for courses such that all students will have the opportunity to take at least one course in such subjects as earth system science, climate science, or climate policy. In order to increase offerings, additional faculty in key areas may be needed.
  
  o Establish stronger integration of climate science and policy into existing undergraduate majors and professional programs, and the creation of new programs specifically focused on climate change. This could include more explicit incorporation of climate science and policy into existing majors such international studies, environmental studies, atmospheric and oceanic sciences and environmental sciences, and/or the development of new programs. Examples of the latter could include professional programs in green business or new programs in climate science and policy. In the name of academic freedom, such changes would have to seek the consent of the departments or programs involved.

2. **Research and Coordination.**

  o As mentioned above, the University should establish more coordination among University personnel, offices, and programs dealing with climate change. For example, the administration could consider establishing a central office to coordinate policy and programs. It should also strive to increase faculty engagement across the four main divisions of research (Biological Sciences; Arts and Humanities; Physical Sciences; Social Studies), and enhance its efforts to encourage interdisciplinary research.
  
  o The University should undertake bold new initiatives that embrace the diversity of the University’s intellectual capacity and lead to transformative advances that result in actionable change in the near term. These initiatives should include, but not be limited to technology development. Transformations are also needed socially and economically. The University can lead in identifying the most important changes required for society to address the impacts of climate change, and provide the knowledge essential to make these changes.

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3. Facilities and Planning.
   - Energy Consumption. The University should commit our campus to significant reduction targets regarding carbon emissions consistent with economic feasibility. Many sources told the Ad Hoc Committee that the University’s first order of business should be to get its own house in order, and this is an appropriate way to start. The exact formulation and levels of these emission reduction targets require further discussion. Regarding the University’s energy generation, one possibility could be a system similar to the Renewable Portfolio Standards that electricity generators follow to produce a specific fraction of their electricity from renewable energy sources. Targets for meaningful carbon emission reductions could be set for certain time horizons, such as the next 10-25 years, and thereafter. Such reductions should take into consideration scientific evidence regarding climactic conditions as well as economic feasibility. The conversion of the University power plants from coal to natural gas in recent times has been a constructive first step in this direction, but we should create more room to expand our portfolio of renewable energy sources such as wind and solar if such sources are economically feasible for the University. The considerations of alternative energy sources may also recognize that stabilizing greenhouse gas concentrations may require the expansion of nuclear energy sources, and analyze the economic and environmental tradeoffs of this energy source as well.
   - Climate Change Impacts on the Campus. The University should develop plans for dealing with the potential physical and economic impact of severe climate-related events on the campus, such as storms, water runoff, and the like.

4. Investment Opportunities.
   - UW Foundation Donations. The Ad Hoc Committee does not recommend “divestment” from fossil fuel companies by the UW Foundation. But there are other investment options that are more consistent with donor choice and free market principles than divestment ordered from the top down. For example, the University should consider encouraging the UW Foundation to offer interested donors an option to invest in non-fossil fuel portfolios. This would not entail firing or pointing fingers at present investment advisors, but simply provide an additional option for investment of donor money based on voluntary donor choice.
   - Capital Campaign. The University should consider making climate change and sustainability a central theme of the next capital campaign. This could include the following components:
     - Advancing research into clean-energy technologies and the training of students interested in pursuing careers in this field.
     - Advancing research into climate resilience and adaptation and the training of students interested in pursuing careers in this field.

VIII. REFERENCES


(continued)
15. IPCC AR5 WG1 SPM 2013: Working Group I Summary for Policy Makers, Approved 27 Sept 2013

(continued)

IX. COMMITTEE MEMBERSHIP OF THE AD-HOC COMMITTEE ON FOSSIL FUEL USE AND CLIMATE CHANGE

Bruce Barrett, Professor, Family Medicine, School of Medicine and Public Health

Craig Benson, Professor and Chair, Civil and Environmental Engineering

(continued)
Vicki Bier, Professor and Chair, Industrial and Systems Engineering
Donald Downs, Professor of Political Science (Chair)
Galen A. McKinley, Associate Professor, Atmospheric and Environmental Studies
Margaret Mooney, Space Science and Engineering Center
Gregory Nemet, Associate Professor, Public Affairs and Environmental Studies

Appendix A. Courses on Climate Science, Impacts, Energy and Policy

**Climate Science**
ATM OCN 102, Climate and Climate Change
ATM OCN 171, Global Change, Atmospheric Issues and Problems
GEOG 321, Climatology
GEOG 331, Climatic Environments of the Past
GEOG/ATM OCN/IES 332, Global Warming: Science and Impacts
GEOSCI 304, Geobiology
ATM OCN 425, Global Climate Processes
GEOSCI 551, Oceanography: Recent Marine Sediments
ATM OCN/IES 520, Bioclimatology
ATM OCN/Envir St/GEOG 528, Past Climates and Climate Change

**Climate Change Impacts**
GEOG/ATM OCN/IES 332, Global Warming: Science and Impacts
F&W ECOL 375/875, Climate Change and Natural Resources  Agroecol/Agronomy/Envir St 724, Agroecosystems & Global Change
PHS/Envir St 740, Health Impact Assessment of Global Environmental Change

**Energy**
PHYS 115, Energy
ECE 355, Electromechanical Energy Conversion
BSE 365 Sustainable Residential Construction
BSE/Envir St 367, Renewable Energy Systems
ME 370 Energy Systems Lab
N E / Envir St 373, Nuclear Energy and the Environment
Envir St 401, Introduction to Air Quality
GEOSCI/Envir St 411, Energy Resource
NEEP 411, Nuclear Reactor Engineering
ECE 427, Electric Power Systems
MSE 434, Intro- Thin Film Deposition.
BSE 460, Bio-refining: Energy and Products
ME 461 Thermal Systems Modeling
ME 469, Internal Combustion Engines
IES 502, Air Pollution and Human Health
CBE 562, Energy and Sustainability
ME/CBE 567, Solar Energy Technology
NEEP 571 Econ & Environmental Aspects of Nuclear Energy

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Appendix B. The Divestment Issue

The divestment question is very complex, so here we provide the key points pro and con that we discussed over the course of our charge.

A. The Rationale Against Divestment (Majority of the Committee)

As this report makes clear, we acknowledge the harms posed by climate change and the University’s responsibility to take responsible actions to address the problem. But is divestment something we should consider? In our considered view, the costs posed by divestment outweigh the benefits. The costs are both normative and practical in nature.

The benefits, mentioned below in the case for divestment, include making a strong symbolic gesture that would send a message about the urgency of the issue. In addition, it is possible—though hardly assured—that a divestment movement would encourage further acceptable movements away from fossil fuel investment and use. Accordingly, divestment could produce normative and practical benefits. But there are significant costs that do not justify divestment, especially because there are so many alternative actions the University can adopt that can deal with climate change in a constructive manner, as we relate in this report.

In a similar vein, many individuals involved in the environmental movement at the University told us that they consider divestment either a red herring or a distraction from the more important and difficult behavioral changes we need to consider down the road. Many campus groups—student, faculty, and staff—are working on a variety of levels to deal with climate change, including engaging with fossil fuel companies to develop other energy sources. We are presently in a state of constructive engagement that entails forming new alliances and bedfellows. We fear supporting divestment would jeopardize such synergistic engagement.

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One of the most significant problems with divestment is that many thoughtful people consider it a political movement that is unnecessarily divisive. This politicization poses two problems. First, it would make it more difficult to build a broader consensus that is needed in order to engage the climate change problem in a constructive manner. For example, a movement in Wisconsin is developing that is bringing some Republicans and Democrats together in support of a carbon tax, which could be an important tool in dealing with climate change. According to a nationally respected engineer with whom we spoke who is very involved in this movement in Wisconsin, the fledgling coalition becomes polarized and starts to fall apart when divestment is raised as a policy tool.

Second, and more importantly for us as an institution with a distinctive role in the constitutional polity, the politicization entailed by divestment would conflict with the proper mission of the University. We agree with Harvard University President Drew Faust, who raised the issue of universities’ distinct role in our society in her recent public statement announcing Harvard’s refusal to divest from fossil fuel companies. In Faust’s estimation, the divestment movement threatens to ‘instrumentalize’ the university. The university exists to serve an academic mission — to carry out the best possible programs of education and research. We hold our endowment funds in trust to advance that mission, which is the University’s distinctive way of serving society. The funds in the endowment have been given to us by generous benefactors over many years to advance academic aims, not to serve other purposes, however worthy. As such, we maintain a strong presumption against divesting investment assets for reasons unrelated to the endowment’s financial strength and its ability to advance our academic goals… We should, moreover, be very wary of steps intended to instrumentalize our endowment in ways that would appear to position the University as a political actor rather than an academic institution. Conceiving of the endowment not as an economic resource, but as a tool to inject the University into the political process or as a lever to exert economic pressure for social purposes, can entail serious risks to the independence of the academic enterprise. The endowment is a resource, not an instrument to impel social or political change.

Until recently, only a handful of colleges have gone on record supporting divestment, and none with an endowment of more than $40 million. This situation did change when Cornell University’s faculty voted in December to divest from fossil fuel companies. Some say we should be next in line among major institutions in order to reaffirm Wisconsin’s reputation as a national leader and trend maker. But leadership means doing the right thing in a conscientious manner according to one’s best lights, and a majority of the Ad Hoc Committee consider divestment the wrong way to go for the reasons stated herein.

Perhaps divestment would be worth the risk if the cause so justified it. Divestment from companies dealing with South Africa is often raised as an appropriate analogy. Divestment in that case had a clear moral rationale and, according to many sources, successful. Apartheid is inherently evil. But the apartheid analogy is flawed. Fossil fuel companies are not inherently evil, as we stress often in this report. But the divestment movement is often couched in terms that portray such companies as immoral. This stigmatization is especially problematic given the many millions of Americans who work for such companies or companies associated with them, and who could become (and are becoming) allies in the environmental movement.

As mentioned above, many major fossil fuel companies are themselves now responding to climate change and embarking on investments in alternative energy sources. Do we risk alienating such efforts by divesting from them?

The concerns raised above are normative and practical. Other practical concerns exist, which we will just list below:

(continued)
If we divest from fossil fuel companies, where do we draw the line? There have been many divestment movements nationally, including calls for divestment from companies that make arms, alcohol, tobacco, pornography, products that assist in abortions, and many others. If we were to argue in favor of divestment of fossil fuel companies, on what grounds could we argue against other forms of divestment?

Research shows that divestment would be difficult to be effective in a deep market in which “neutrals” could simply buy back stock sold by others. It is not at all clear that a divestment movement in this domain would be successful in a country like ours.

One argument for divestment is “economic”: fossil fuel companies’ values are inflated “bubbles” because future national and local policy will make their profits shrink. But many such companies are now changing their economic and business models in a way that is adapting to climate change, as the New York Times recently reported. This weakens the bubble theory.

According to the UW Foundation, many major donors to the University have already expressed their strong disapproval of divestment, and major donors would withhold their support.

None of the outside advisors the Foundation uses to make investment decisions engages in divestment decisions based on policy concerns, and no present donors have made such stipulations.

Investment returns could be negatively affected by eliminating fossil fuel companies as investment options. The “Monte Carlo Effect model suggests that the fewer the investment options the more likely returns will be less than optimal. For example, the Wisconsin state pension system made many millions of dollars investing in Russian oil a few years ago when a unique market opportunity arose.

Divestment could weaken or eliminate the University’s power to influence corporate behavior from within. It might be more effective to buy more stock and build shareholder pressure toward fossil fuel companies.

The energy industry is vast, especially when we include companies that interact with it and support it (banks, financial companies, energy supply companies, tool companies, exploration companies, etc.) If we are serious about divestment, should we not divest from them, too?

As discussed in our report, we recommend that the Foundation consider setting up a fund for donors who wish to invest in environmentally friendly funds. This would increase investor choice rather than restricting it.

B. The Rationale for Divestment (Minority of the Committee)

Global warming and climate change present an unprecedented and overwhelming threat to humanity. The scientific evidence that this threat is caused by human activity, primarily by the burning of fossil fuels, is extensive, and conclusive.

The argument for divestment is really quite simple. By calling for the removal of University of Wisconsin assets from fossil fuel companies that adhere to irresponsible and damaging corporate policies, we hope to influence those policies for the better. We also hope to focus individual and collective attention on climate change, to bring about better governmental laws and regulations, and to improve individual, organizational and societal choices and behaviors.

As the scientific analysis section of this report makes clear, the findings of the Intergovernmental Panel on Climate Change, the National Research Council of the National Academies of Science, the World Meteorological society, and numerous other authoritative bodies are based on overwhelming evidence, sound critical analysis, and cautious interpretation. As the human impacts section explains, the threats to human
civilization range from heat waves, droughts and extreme weather events to flooded cities, infectious disease epidemics, agricultural disruption, increased immigration, and potential societal breakdown.

Already, earth has warmed about 1ºC, the seas have risen about nine inches, and a series of unprecedented extreme weather events have affected numerous societies on all inhabited continents. With each passing year, the stark reality and monumental importance of global warming and climate change reach further into local, national and global consciousness, prompting individuals, organizations and governments to seek ways to mitigate the growing threats that greenhouse gas (GHG) emissions pose.

There is now overwhelming scientific consensus that with current and projected GHG releases, earth’s average temperature will rise at least 2ºC above pre-industrial levels, with increases of 4ºC or 6ºC quite possible, depending primarily on the quantity of future GHG emissions. Temperature rises in the 4ºC or 6ºC range could complete the melting of glaciers, tundra and polar ice caps, ultimately raising sea levels by approximately 200 feet. Effects on the planet’s life-sustaining weather patterns and ecosystems cannot be predicted in detail, but are potentially catastrophic, and for thousands of species that may disappear in a mass extinction event that seems to have already begun.

So far, fossil fuel combustion and other human activities have increased atmospheric carbon dioxide (CO₂) levels by about 43%, from 280ppm to 400ppm (parts per million). The planet’s top scientists tell us that in order to keep temperature rise to below 2ºC, we can safely emit no more than an additional 500 to 1,000 gigatons (Gt) of CO₂. If burned, currently known fossil fuel deposits would yield more than of 2,500 Gt of CO₂. Thus, the only sane and safe course for humankind is to leave the vast majority of known fossil fuels in the ground, and to rapidly and dramatically switch over to non-GHG emitting forms of energy.

And yet, in face of convincing science and overwhelming threat, the companies that own the majority of the known coal, oil and natural gas reserves are spending billions of dollars seeking new deposits, most of which are inaccessible and of low quality, so that extraction and refinement would themselves add substantively to the atmospheric pollution problem. And, given the information summarized above, these fuels must not be combusted. Those same companies, which hold hundreds of billions of dollars of assets and have many choices open to them, are investing pitifully small sums on the development of and transfer to low- and zero-carbon emission energy systems. Driven by profit motive and consumer demand, and without appropriate laws, regulations and incentives to restrain them, the major fossil fuel companies are pursuing endeavors that pose unprecedented threats to humanity’s future.

There are many among us at the University of Wisconsin who feel that it is wrong to seek profit by investing in such monumentally irresponsible endeavors. We do not want our own personal assets or those of the University that we love to be invested in pathways leading towards ecological destruction and potential societal collapse. We also feel that such investments are imprudent, as we are cautiously optimistic that humanity’s will for long-term survival will outmatch short-term profit drives, and that earth’s people and their governments will enact and enforce laws to keep fossil fuels in the ground, which will drastically reduce the value of these “assets”. We realize that the carefully considered withdrawal of the millions of dollars of assets held by the University of Wisconsin System and U.W. Foundation may on its own have little effect on corporate behavior. We realize that choice of the top 200 fossil fuel companies is somewhat arbitrary, and that setting a benchmark towards investment in carbon free technology to exempt companies from divestment has its own complexities. We feel that the University of Wisconsin is wise to refrain from frequent or excessive engagement in politics, and that telling the truth about climate change and calling for appropriate action can be mistaken for partisan political activism. But in the end, the overwhelming threat to humanity, made clear by extensive and conclusive scientific evidence, calls us to demand radical and rapid change in our energy systems.

(continued)
A number of people at the University of Wisconsin-Madison, including some on this committee, feel that calling for divestment from fossil fuels would be an appropriate and justified means toward these ends.