

**Dr. DAN E. ARVIZU, NAE, NAPA**

**PROFESSIONAL  
OBJECTIVE:**

*After four decades in a fruitful and exciting professional career, first working as a research engineer/scientist, then as a manager and executive, and leading up to being recognized as a prominent global thought leader in energy and environment, **I am dedicated to continuing applying my leadership skills, management talents, energy and passion to organizations and communities that are committed to developing and preparing the leaders of tomorrow.** I am persuaded that the major challenges facing our nation and the planet, including issues of climate change, border security, economic competitiveness, and social inequality can be solved through innovation in technology and education, informed public policy, and by unlocking the nation's human capital potential.*

**NATIONAL  
SERVICE:**

**NATIONAL SCIENCE BOARD**, Member for two terms May 2004 – May 2016. Appointed by Presidents George W. Bush (2004) and reappointed by President Barack Obama (2010) and twice confirmed by the full Senate, to the 24-member National Science Board (NSB) that has oversight and governance responsibility for the National Science Foundation. Twice elected by peers for a two-year term as Chairman (2012-2016) of the NSB.

**PROFESSIONAL  
EXPERIENCE:**

**EMERSON COLLECTIVE**

Palo Alto, California, June 2016 – Present

**Senior Advisor**, September 2017 – Present

**STEM Evangelist & CTO Elemental**, Sept. 2016 – Sept. 2017

**Independent Consultant**, June 2016 – September 2016

**STANFORD UNIVERSITY**

Stanford, California, January 2016 – Present

**Precourt Energy Scholar**

**Adjunct Professor**, Energy Transformation Collaborative Course, Winter and Spring quarters, January – June 2016

**MRIGLOBAL (formerly Midwest Research Institute)**

Kansas City, Missouri, January 2005 – November 2015

**Executive Vice President**

**Director and Chief Executive**, National Renewable Energy Laboratory, January 2005 – November 2015

**Director Emeritus**, National Renewable Energy Laboratory December 2015 – Present

**President**, Alliance for Sustainable Energy, LLC October 2008 – November 2015

**UNIVERSITY OF CHICAGO**

Chicago, Illinois, April 2004 – December 2004

**Executive Director**, Energy Programs

**President**, Idaho Laboratory Affiliates, LLC, April 2004 – October 2004

**CH2M HILL COMPANIES, LTD.**

Greenwood Village, Colorado, July 1998 – April 2004

**Senior Vice President****Chief Technology Officer**, Federal and Industrial Businesses, April 2002 – April 2004**Co-Managing Director**, Amended Silicates, LLC, November 2003 – October 2004**Corporate Intellectual Property Executive**, April 2002 – December 2003**Director**, Energy and Industrial Systems Business Unit, October 1999 – April 2002**Vice President****Director**, Energy Technology, October 1998 – October 1999**President**, Sustainable Energy Solutions, LLC, July – October 1998**SANDIA NATIONAL LABORATORIES**

Albuquerque, New Mexico, June 1977 – 1998

**Director**, Materials and Process Sciences Center, 1997 – 1998

Advanced Energy Technology and Policy Center, 1993 – 1997

Technology Transfer and Policy Center, 1991 – 1992

**Manager**, Technology Transfer Department, 1988 – 1991**Supervisor**, Photovoltaic Cell Research Division, 1986 – 1988

Photovoltaic Concentrator Research Division, 1984 – 1986

**Member of Technical Staff**, Solar Programs, 1977 – 1984**BELL TELEPHONE LABORATORIES**

Denver, Colorado, 1973 – 1977

**Member of Technical Staff**, Electronic Switching Systems Laboratory, heat transfer specialist, 1973 – 1977**TEXAS INSTRUMENTS**

Dallas, Texas, 1969 – 1972

**Cooperative Education Student**, Government Products Division, manufacturing engineer apprentice, 1969 – 1972**EDUCATION:****Bachelor of Science**, Mechanical Engineering, **New Mexico State University**, Las Cruces, NM, May 1973**Masters of Science**, Mechanical Engineering, **Stanford University**, Stanford, CA, September 1974**PhD**, Mechanical Engineering, **Stanford University**, Stanford, CA, January 1982**PERSONAL:**

Married to the former Sheryl K. Tatman. We are proud parents in our blended family of eight grown children and eight grandchildren.

Active DOE Q clearance since 1976. Presently held through the National Renewable Energy Laboratory and the Department of Energy's Energy Efficiency and Renewable Energy office. Conversational Spanish speaker.

**CAREER  
ACCOMPLISHMENTS  
AND HIGHLIGHTS:**

- As a member of **Emerson Collective** founded by Laurene Powell Jobs, I have been a chief architect for creating a strategy and approach for Emerson Elemental's practice, whose mission it is to strengthen the synergy between humanity and nature. Building on the many years of working on energy and environment R&D, I helped create the strategy for philanthropy to invest in for-profit early stage startups in energy and environment, with extraordinary entrepreneurs who will move disruptive technologies into the market to accelerate the transition to a low carbon energy future that empowers the underserved, improves quality of life for all, and contributes to the national well-being, economic development, and competitiveness.
- After more than four decades of professional engagement in the clean energy field, and more than a decade at the **National Renewable Energy Laboratory (NREL)** I have become one of the world's leading experts on renewable energy and sustainable energy. In the almost 11 years at NREL, I testified before Congress at least a dozen times, provided 6 Congressional caucus briefings, and keynoted more than 60 major national and international conferences.
- As Director and Chief Executive of DOE's National Renewable Energy Laboratory, I established a new vision and strategy and then oversaw the implementation of a new institutional strategy to position the Lab for higher impact and contributions to national energy challenges. During my 11-year tenure, I doubled the budget from less than \$200M to almost \$500M, I hired over 1000 staff, and attracted over \$500M of government investment in infrastructure to move NREL out of leased space into a new world class sustainable campus. We commissioned the first DOE Leed Platinum Building (all new buildings are now Leed Pt) and the world's largest commercial Net-Zero energy office building, totally powered on an annual basis by solar photovoltaics.
- As Chief Technology Officer of **CH2M HILL's** Energy, Environment and Systems Businesses for Federal and Industrial clients, defined and organized the global technology practices to lead technology innovation, and create technology business ventures for emerging markets to significantly enhance shareholder value for the firm.
- As the first Director and lead developer of CH2M HILL's global energy business, accomplishments include creating and developing an energy and power business from the ground up which became profitable in the second year with revenues of >\$100M.
- While at **Sandia National Labs** I managed/led a world-class materials and process sciences R&D (program budget of ~\$100M) effort in support of DOE nuclear defense and energy programs at Sandia. I also pioneered lab/industry and lab/lab partnership efforts, led Sandia technology transfer program to be among DOE's best with many cooperative partnerships worth several \$B's with U.S. industry.
- Managed research efforts that held world-record solar cell efficiencies in silicon, gallium arsenide, and multi-junction technology. Designed and built a world record 17% efficient concentrating solar cell module.
- Active champion and role model for cultivating and mentoring women and minority students into pursuing careers in science & engineering.

**PUBLICATIONS AND  
PRESENTATIONS:**

Over the past 35 years I have published many technical review papers and given invited technical talks and lectures, primarily in technical conferences, on subjects ranging from national and international **energy technology R&D and policy** including progress in **advanced clean energy technologies** such as renewable energy, clean coal, and advanced nuclear, to **material science** for national security and the environment, to **technology transfer** and private/public **partnerships**.

**AWARDS AND  
RECOGNITION:**

- Department of Energy, **Secretary of Energy's Exceptional Service Award**, December 2015
- **New Mexico State Commencement Speaker and Honorary Doctor of Science** Recipient, December 2015
- **Recognized by the U.S. House of Representatives** on the House floor on November 4, 2015 by Congressman Edward Perlmutter, upon my retirement from NREL, for "...**Outstanding stewardship of the Nation's National Renewable Energy Laboratory.**"
- University of Colorado at Denver Wirth Chair **2015 Sustainability Award**, August 2015, presented by Senator Tim Wirth, and Cabinet Secretaries, Federico Pena, Ken Salazar, and Ernest Moniz.
- **National Academy of Engineering**, elected **Fellow**, for "leadership in the renewable and clean energy sectors, and for promoting national balanced energy policies." September 2014
- *US News* **2013 STEM Leadership Hall of Fame**, June 2013
- New Mexico State University College of Engineering **2012 Distinguished Alumnus and Circle of Honor**, October 2012
- American Society for Engineering Education National Hispanic Heritage Month **recognized as NREL's Director and for helping shape national research policy**, September 2012
- Hispanic Engineer & Information Technology Magazine **Top 200 Most Influential Hispanics in Technology**, March 2011
- **National Academy of Public Administration**, Elected **Fellow**, November 2010
- Florida Museum of Science and Industry **Hispanic Scientist of the Year**, October 2010
- French American Chamber of Commerce 2010 **L'Esprit de France Award** in recognition of contributions to French-American research collaboration
- Society of Hispanic Professional Engineers Colorado recognition as "**Hispanic leader in our community,**" April 2010
- Jefferson Economic Council 2009 **Pioneer Award** for pioneering leadership and exemplary contributions to Jefferson County's economy
- Hispanic Contractors of Colorado 2009 **Public Achievement Award**
- Inducted into the **Hispanic Engineer National Achievement Award Conference Hall of Fame**, 2008
- World Renewable Energy Congress X (WREC), **The Special WREC & Congress Council Award for outstanding contributions to renewable energy globally**, 2008
- Appointed by CH2M HILL Executive Management to inaugural class of **Technology Fellows**, 2002
- Hispanic Engineer National Achievement Award Conference winner of the 1996 **Executive Excellence** award, Houston, Texas, 1996
- Technology Transfer Business Magazine – Feature Article "**A Day at Sandia puts Technology Transfer in Far Sharper Focus,**" 1993
- Washington Technology Publication, Feature Article "**One of six leaders, who make it happen,**" 1992
- North America Technology Commercialization Publication, **Feature interview on technology transfer**, 1992
- New Mexico State University awarded **Ingeniero Eminent**, for contribution to the engineering profession, 1990
- Albuquerque Tribune, Selected as "**Rising Star in Science,**" 1989

**EXTERNAL  
ADVISORY BOARDS:**

**Current**

- **State Farm Mutual Board of Directors**, June 2009–Present
- **Myco Technologies**, Board of Directors, 2017–Present
- **Stanford Precourt Institute for Energy Advisory Council**, 2011–Present
- **Stanford Precourt Institute for Energy Global Climate and Energy Project (GCEP) Advisory Board**, 2011–Present
- **Singapore International Advisory Panel on Energy**, 2008–Present
- **Solar Energy Research Institute of Singapore (SERIS) International Advisory Panel**, 2008–Present
- **US News STEM Advisory Council**, 2013–Present
- **Lawrence Hall of Science**, University of California, Berkeley, **Coding Internships**, NSF Grant 2017 – Present

**Previous**

- **National Science Board**, Member 2004–2016 (Chair, 2012–2016)
- **AIST 100% Renewable Energy in Fukushima Project** International Advisory Committee, 2013–2016
- **Council on Competitiveness U.S. Manufacturing Competitiveness Initiative** Steering Committee, 2011–2016
- **Museum of Science and Industry**, National Board, 2011–2016
- **American Council on Renewable Energy** Advisory Board, August 2005–2017
- **Colorado Energy Research Collaboratory Authority** Board of Directors, appointed by the Colorado Legislature, 2007–2015
- **Metro Denver Economic Development Council (MDEDC)**, 2008–2015
- **Council on Competitiveness US-Brazil National Laboratory Initiative** Steering Committee, 2013–2015
- **California IOUs/LADWP/SMUD** Advisor to the **50% RPS Commission Report**, 2013–2014
- **CleanTech Investor Summit** Advisory Board, 2009–2014
- International Advisory Board of the **InterSolar North America Conference 2013**, 2013–2014
- **American Society of Mechanical Engineers (ASME) Frank Kreith Energy Award** Committee, 2006–2014
- **Great Minds in STEM (formerly Hispanic National Achievement Award Conference [HENAAC])**, Board of Directors, 2000–2013. Chair, Executive Committee, 1999–2004
- **The National Academy of Sciences** U.S. National Member Organization for the **International Institute for Applied Systems Analysis (IIASA)**, May 2011–March 31, 2014
- **NYS2100 Infrastructure Commission and Energy** Subcommittee, 2012–2013
- Member, **Alliance to Save Energy Commission on Energy Efficiency Policy**, 2012–2013
- **IIASA Global Energy Assessment** Council Member, 2008–2012

- **Hawaii Clean Energy Initiative Integration** Steering Committee, 2008–2012
- **Intergovernmental Panel on Climate Change**, Chapter Lead Author on Solar for a Special Report on the Greenhouse Gas Mitigation Potential of Renewable Energy, January 2008–May 2011
- **The National Academies Science Ambassador Program** Advisory Board, 2009–2010
- **Xcel Energy SmartGridCity** Advisory Council, ongoing project pushing pioneering smart grid technology, 2008–2011
- **Harvard Kennedy School Energy Research, Development, and Deployment Policy Project** Advisory Committee, led by Drs. John Holdren and Venkatesh Narayanamurti, 2008–2010
- **World Economic Forum Global Agenda Council on Alternative Energies**, 2008–2009
- **Co-chair, National Science Board Task Force on Sustainable Energy**, 2007–2009
- **XPRIZE Foundation Energy** Advisory Council, 2007–2009
- **DOE National Laboratory Directors Council** Executive Committee, Vice Chair, elected by peers to represent all national laboratories as an interface to the Secretary of Energy, 2007–2008; 2012–2015.
- **Fermi Research Alliance LLC, FermiLab** Board, 2007–2008
- **University of Colorado Wirth Chair** Advisory Board, 2005–2009
- **New Mexico State University**, College of Engineering Advisory Board, 2005–2010; Mechanical Engineering Academy, Charter member, 1988–2009
- **Colorado Innovation Summit** Advisory Board, 2003–2009
- Advisor to **Division of Engineering and Physical Sciences Committee**, appointed by William Wulf, President of the National Academy of Engineering, for term through December 2003
- **National Coal Council** Member appointed by Secretary of Energy Spencer Abraham, for the term 2002–2005
- **Greater Metro Denver** Advisory Board of the **Salvation Army**, 2001–2007
- **Army Science Board** Member appointed by Secretary of Defense, William Cohen, for the term 2001–2003
- **Sandia National Laboratories, Geoscience and Environment Center**, External Advisory Board, for the term 2000–2004
- **Colorado School of Mines**, Visiting Industrial Advisory Board, 1999–2009
- **University of Texas El Paso**, Advisory Board for Model Institute for Excellence Program, 1995–2009; Engineering Advisory Board, 1995–2009
- **National Technology Transfer Center** Charter Member of Advisory Board, Wheeling, West Virginia, 1995–1997
- **Solar II Commercialization** Advisory Board, 1993–1996
- **Association of Federal Technology Transfer Executives**, Charter Member, 1992–1996
- **IEEE Electron Device Society**, Administrative Committee, representative for PV Specialist Conference, 1986–1990
- **ASME**, Member of the Technology Transfer Committee, Participated on Solar Standards Committees, Member, 1972–2009

**TASK FORCES:**

- **National Academy of Public Administration** panel on Improving the National Research Council's Study and Administrative Processes: An Independent Review, 2017
- **Energy Security, Innovation and Sustainability (ESIS) Initiative Steering Committee**, a major task force of the Council on Competitiveness led by Dr. Shirley Ann Jackson, 2008–2009
- **International Ad-Hoc Expert Working Group on Renewable Energy Policy** established by the United Nations Department of Economic and Social Affairs, 2005–2005
- **National Research Council** of the National Academy of Sciences and Engineers, study team on Alternative Energy Evaluation for Indian Point Nuclear Power Stations 1 and 2, 2004–2005
- **DOE National Wind Program Peer Review Committee**, appointed by DOE Wind Program Director, Peter Goldman, May 2003–2005
- **Building Engineering and Science Talent (BEST) Congressionally Mandated Blue Ribbon Workforce Panel**, Chair, appointed by John Yochelson, President of BEST, an initiative of the Council on Competitiveness, May 2002–2005
- **CEO Coalition for Sustainable Technologies**, Chair of Energy Working Group, appointed by Chuck McDermott, Chair of CEO Coalition and President of Rockport Group, March 2002–2004
- **National Research Council** of the National Academies of Science and Engineering, study team for DOE's Concentrating Solar Power Program, 2001–2002
- **National Research Council** of the National Academy of Sciences and Engineering, study team for DOE's Office of Power Technologies, including 8 renewable energy technologies, 1999–2000
- **G8 Task Force on Renewable Energy Technical Advisory Group, Renewable Energy: Development That Lasts**, Study and report commissioned by G8 heads of State, appointment by Co-Chairs, Sir Mark Moody-Stuart, Chairman of Royal Dutch Shell, London, England and Dr. Corrado Clini, Deputy Minister of the Environment, Rome, Italy, 2000–2001
- **Department of Energy Technology Opportunities for Green House Gas Emissions**, 11-National Lab Directors' Report/Study, for Secretary Peña, 1997.  
DOE Cross Program **R&D Integration Workshops**, commissioned for Energy Research Director Krebs, 1996–1997.  
**Alternative Financing Study**, commissioned by Deputy Secretary Curtis and led by DOE Policy Office, 1996.  
**Industry/Lab Partnerships Study**, DOE strategic planning kickoff for Secretary O'Leary, Directed by Didisheim, 1994.
- **Center for Strategic and International Studies National Benefits for National Labs**, Directed by Pikus, 1993
- **U.S. Office of Technology Assessment Technology & Defense Conversion**, Directed by Gillman, 1993