



**CCST**

**CALIFORNIA COUNCIL ON  
SCIENCE & TECHNOLOGY**

*Susan Hackwood*  
*CCST Executive Director*

**COUNCIL MEETING**  
**2/19/15**

# *Summary of CCST Activities*

- ✧ CCST Governance and Operations
  - ✧ Strategic Planning Process
- ✧ CCST Projects
  - ✧ California's Energy Future
  - ✧ Assessment of Well Stimulation Technologies
- ✧ S&T Policy Fellows
- ✧ CalTAC



## STRATEGIC PLAN 2014-2020



## *Strategic Planning*

- ✧ In 2013, CCST launched strategic planning processes for both CCST and the CCST Science and Technology Policy Fellowship program
- ✧ Drafts approved by Board, need final sign off

## *S&T Committees*

- ✧ Six subject-matter committees created to assist with plans, ideas, and potential projects
- ✧ Committee members to discuss current topics and issues, brainstorm on potential decision makers with whom we should meet, and present ideas to entire Council
- ✧ Almost all committees have met and will report at Council meeting

# Six subject-matter committees

## •Executive Committee

•Members: John Hall, Joe Walkush, David Martin, Prasad Ram, Jeff Rudolph, Corey Goodman, Peter Cowhey, Charlie Kennel, Amber Mace, Julie Meier Wright, and Susan Hackwood.

## •New Technology and Innovation Committee

•Members: Peter Cowhey, Dona Crawford, Fariborz Maseeh, Julie Meier Wright, Terry Lewis and Susan Hubbard.

## •Energy Issues Committee

•Members: Bryan Hannegan, Patrick Lee, Jane Long (vice-chair), Jim Sweeney, Joe Walkush (chair), and Dan Sperling.

## •Water Issues Committee

•Members: Zee Duran, John Hall (chair), Jude Laspa, Amber Mace, Soroosh Sorooshian, Julie Meier Wright and Jeff Dozier.

## •Life Sciences Committee

•Members: Corey Goodman, Dave Martin

## •Education Committee

•Members: Jeff Armstrong, George Blumenthal, Prasad Ram (chair), Jeff Rudolph, Heidi Haugen (CalTAC), Andy Kotko (CalTAC), and Darrel James (CalTAC).

# **CCST Standing Committees**

## **Membership Committee**

Members: Jim Sweeney (chair), Patrick Lee and Joe Walkush.

## **Audit/Finance Committee**

Members: John Hall, Jeff Rudolph (chair), Peter Cowhey and Julie Meier Wright.

## **Advancement Committee**

Members: Amber Mace and Julie Meier Wright.

# California's Energy Future – Policy



# *How to Choose a Climate-Friendly Electricity System for the Future*

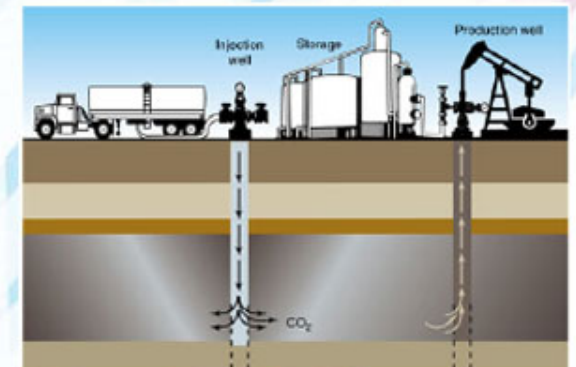


- ✧ The state could generate emission-free electricity in three ways: renewables, fossil fuel with carbon capture and storage, or nuclear
- ✧ Each of three poses challenges
- ✧ Options are uncertain and, consequently, having more options available could be critical factors in achieving good outcomes



# *Electricity from Natural Gas with CO<sub>2</sub> Capture for Enhanced Oil Recovery*

- ✧ Evaluates emission accounting under California's existing climate policies for energy systems that integrate CO<sub>2</sub> capture and storage with CO<sub>2</sub>-enhanced oil recovery
- ✧ CCS has been identified as potentially important for advancing California's energy future



# *Assessment of Well Stimulation Technologies*



Pursuant to SB4, the CNRA is required to commission an independent study of WST - CCST selected to conduct study

Similar scope to BLM study completed by CCST in 2014, with addition of applications of well stimulation in gas production and offshore wells

# *SB4 Well Stimulation Assessment*

✧ Report laid out in three volumes:

- I. Past, Present and Future Applications of Well Stimulation Technology in California*
- II. Environmental Impacts of Well Stimulation Technology in California*
- III. Case Studies with Selected Evaluations of Environmental and Public Health Risk*

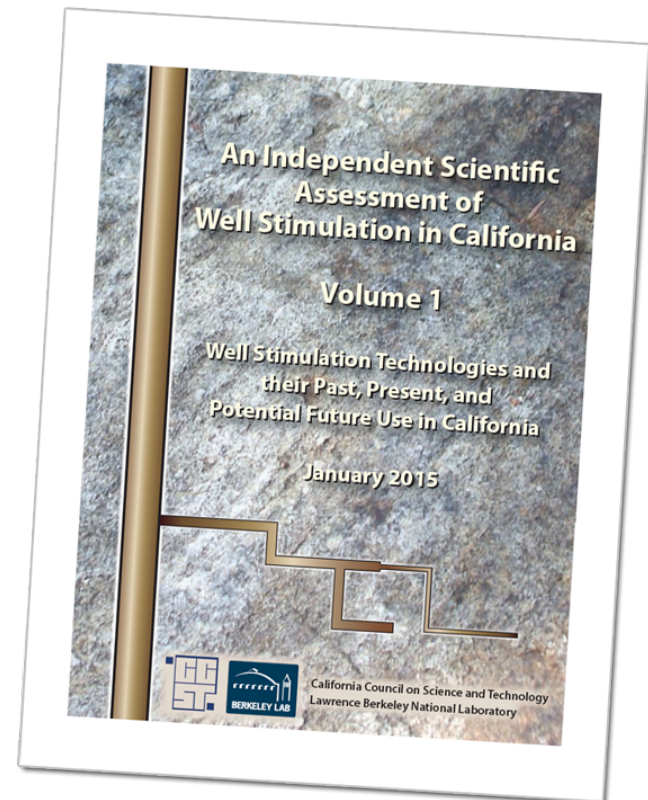
CCST, in partnership with LBNL, has organized Steering Committee and assembled a team of contractors & subcontractors to analyze data and write the report.

Report to analyze and review existing data and literature

## *Volume I*

Released on January 14,  
2015

Volume II and II scheduled  
for release July 2015





# SCIENCE & TECHNOLOGY POLICY FELLOWS

SCIENCE & TECHNOLOGY INFORMING POLICY



Back Row, Left to Right: Andrew Kosydar, Estevan Santana, Jane Mantey, Shannon Muir, Scott Sellars

Front Row, Left to Right: Laurie Harris, Vivian Ericson, Christine Hochmuth, Angee Doerr, Debra Cooper

# 2014-15 Fellows (Year Six)

- **Debra Cooper** – *Senate Office of Research*
  - PhD in Neuroscience, Emory University
  - BS in Psychology, Duke University
- **Angela Doerr** – *Senate Natural Resources and Water Committee*
  - PhD in Ecology, UC Davis
  - BS, Duke University and MBA, American Military University
  - Active duty in the Navy for 8 years
  - Lieutenant Commander, Navy Reserves
- **Vivian Ericson** – *Office of Assembly Member Garcia*
  - PhD in Molecular and Cellular Physiology, Stanford University
  - BS in Cell and Developmental Biology, UC Santa Barbara
- **Laurie Harris** – *Senate Environmental Quality Committee*
  - PhD in Wildlife Epidemiology, UC Davis
  - BS in biology and DVM, Purdue University
- **Christine Hochmuth** – *Senate Committee on Transportation and Housing*
  - PhD in Cell and Molecular Biology, University of Rochester
  - MS in Biology, University of Rochester
  - MS and BS in Biological Sciences, SUNY Brockport
  - BS in Biology, Ohio State University
- **Andrew Kosydar** – *Office of Assembly Member Daly*
  - PhD in Biology, University of Washington
  - BS Wildlife Biology and BA in French, University of Montana
- **Jane Mantey** – *Office of Assembly Member Jones-Sawyer*
  - PhD in Biomedical Sciences, Meharry Medical College, Nashville, TN
  - BS in Biology, University of Maryland, Eastern Shore
  - Vanderbilt University Scientist-In-The-Classroom Partnership teaching fellow, 3rd, 4th, and 8th grades
- **Shannon Muir** – *Senate Health Committee*
  - PhD in Biomedical Sciences, UC San Diego
  - MS in Pharmacology, Tulane University
  - BS in Psychobiology, UC Los Angeles
- **Estevan Santana** – *Office of Assembly Member Bonilla*
  - PhD in Microbiology, Ohio State University
  - BS in Biology, Ohio State University
- **Scott Sellars** – *Office of Assembly Member Quirk*
  - PhD in Civil Engineering, UC, Irvine
  - MS in Civil Engineering, UC Irvine
  - MA in Climate and Society, Columbia University in New York City
  - BS in Meteorology, University of Utah in Salt Lake City

# *Alumni Fellows*



- ❖ Doug Brown continues to coordinate grant to support development & operation of a formal S&T Policy Fellows Alumni Network
- ❖ Holiday alumni event hosted in DC
- ❖ Event in January hosted with Science Communicator's Alliance
- ❖ February 2015 targeted for event in State Capitol
- ❖ Developing event in State Capitol to focus attention on science policy, work of Fellowship and CCST

# Application Process

- ✧ Currently recruiting for year 7
- ✧ Applications open Dec 1<sup>st</sup>, 2014
- ✧ Applications due Feb 28<sup>th</sup>, 2015
- ✧ Interviews May 2015
- ✧ One-year Fellowship begins Nov 1<sup>st</sup> 2015





# We are looking for candidates who are:

- ✧ Excellent communicators
- ✧ Effective in fast paced environments
- ✧ Emotionally intelligent
- ✧ Open minded and willing to learn
- ✧ Problem solvers
- ✧ Great team members
- ✧ Flexible and adaptable

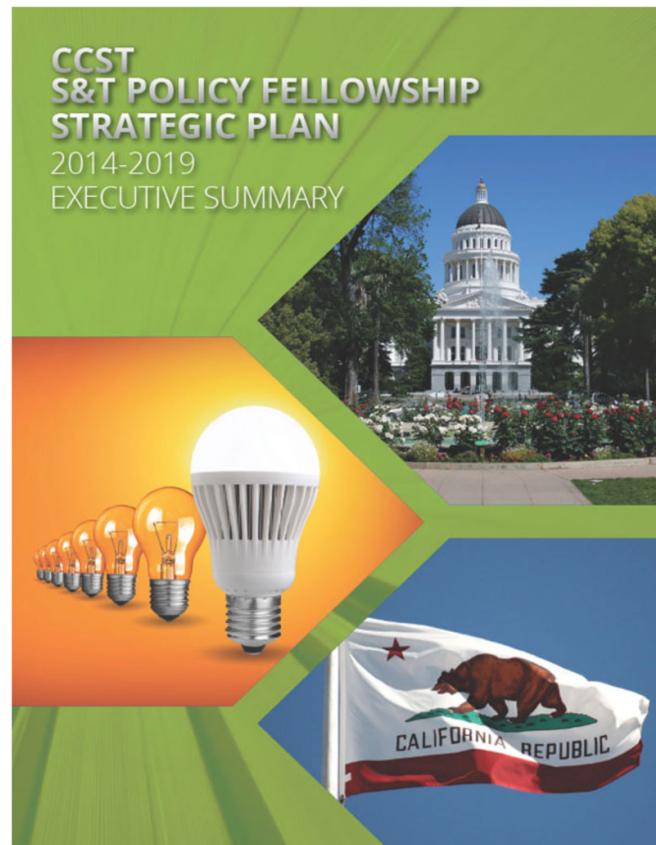


# Strategic Planning

- ❖ Current goals are to maintain current legislative program for additional 5 years and expand to Executive branch
- ❖ Currently funded through 2016 (Year 7)
- ❖ Renewing funders for years 5-10:
  - ❖ GBMF - \$1M
  - ❖ Heising Simons - \$333K
  - ❖ John Morgridge - \$500K
- ❖ New funders for years 5-10:

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| ❖ T. Geballe - \$5K (received)      | ❖ Irwin Jacobs - \$50K (received) |
| ❖ Corey Goodman - \$50K (pledged)   | ❖ Alan Louie - \$5K (received)    |
| ❖ Charles Harper - \$100K (pledged) | ❖ Anonymous - \$100K (received)   |

**Critical funding targets: \$307K by April 2015 and additional \$467K by end of 2015**





- ✧ Group of active K-14 science and math teachers providing a valuable connection between teaching community and educational experts & policymakers
- ✧ Membership has been raised from 10 to 15 teachers
- ✧ Associates (alumni) group of 22 teachers – CCST has been reaching out to expand their participation in partnership efforts



## *Partnerships/collaborations*

- ✧ GOORU online library of common core based lessons
- ✧ Common Sense Media/Graphite – Discussions underway with Graphite to feature Cal TAC members as reviewers of apps, games and other resources
- ✧ California State University – CCST and Cal TAC exploring possible appointment of selected Cal TAC teachers as CSU adjunct faculty
- ✧ California Community College System Teacher Preparation Pipeline
- ✧ Center for the Future of Teaching and Learning/WestEd – Cal TAC members hope to participate in “Digital Learning Collaborative” at Stanford University’s Design School
- ✧ National Academies Teacher Advisory Council (NTAC)



NATIONAL ACADEMY  
OF SCIENCES



## *Sustainability*

- ✧ CaITAC received funding in February 2015 from S.D. Bechtel Jr. Foundation for a nine-month planning grant to develop specific recommendations and outcomes
- ✧ Framing a STEM Education Strategic Plan with STEM Education Committee
- ✧ Envisioned model has an environment where teachers are supported by open-source developers and policies that encourage and support digital innovations from teachers and students



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**FOR MORE INFORMATION  
VISIT**

**[HTTP:// CCST.US](http://ccst.us)**





## EXECUTIVE COMMITTEE

John Hall, Joe Walkush, David Martin, Prasad Ram, Jeff Rudolph, Corey Goodman, Peter Cowhey, Charlie Kennel, Amber Mace, Julie Meier Wright, and Susan Hackwood.

1. Act on behalf of the Council between Council meetings, and report to the Council on actions and activities.
2. Provide advice to the Executive Director on issues, requests, and projects that require a rapid response and/or have some urgency.
3. Prioritize projects and direction of the Council, review the charge, plans, and activities of the committees and establish an agenda for Council meetings.
4. Assist in the performance review of the Executive Director and key staff at the request of the Board.
5. Periodically review committee charge, structure, composition, and selection process of Council members to insure broad and diverse representation of all constituents.





# NEW TECHNOLOGY AND INNOVATION

Peter Cowhey, Dona Crawford, Fariborz Maseeh, Julie Meier Wright,  
Terry Lewis and Susan Hubbard.

1. Provide a method of creating awareness of new S&T opportunities, risks and benefits.
2. Identify specific opportunities and approaches by which CCST can promote the development of science and technology to enhance the business climate as well as the economic and social well being of California.
3. Work with and suggest to state officials the policies and infrastructure that allow the development and advancement of science and technology.
4. Work with state and local government officials to encourage the use of science and technology within their own service delivery and administrative infrastructures.
5. Develop guidelines and processes for project selection and execution, taking into account resources, scale, and timeliness requirements.



## WATER ISSUES

Ziyad Durón, John Hall (chair), Jude Laspa, Amber Mace, Soroosh Sorooshian, Julie Meier Wright and Jeff Dozier.

1. Identify, evaluate, and recommend to the Council programs, activities, and actions that enhance the use and value of science and technology for ensuring future water quality and sustainability in California.
2. Identify important water issues relevant to California where the science and technology is a significant component of the solution to the issues.
3. Advise, analyze, and evaluate requests to the Council for assistance regarding water matters.

# Science and Technology Innovation for California's Water Future

- ✧ New Water committee has met, will look at recommendations from CCST's 2014 report and the priorities of the Governor's State of the State address in January 2015
- ✧ Committee will identify overlapping priorities, recommend possible actions



## ENERGY ISSUES

Bryan Hannegan, Patrick Lee, Jane Long (vice-chair), Jim Sweeney, Joe Walkush (chair), and Dan Sperling.

1. Identify, evaluate, and recommend to the Council programs, activities, and actions that enhance the use and value of science and technology for ensuring California's energy future and sustainability in California.
2. Identify important energy issues relevant to California where science and technology is a significant component of the solution to the issues.
3. Advise, analyze, and evaluate requests to the Council for assistance regarding environmental matters.



## LIFE SCIENCES

David Martin (chair) and Corey Goodman.

1. Identify, evaluate, and recommend to the Council programs, activities, and actions that enhance the use and value of science and technology for ensuring California's energy future and sustainability.
2. Identify important energy issues relevant to California where science and technology is a significant component of the solution to the issues.
3. Advise, analyze, and evaluate requests to the Council for assistance regarding environmental matters



## EDUCATION

Jeff Armstrong, George Blumenthal, Prasad Ram (chair), Jeff Rudolph, Heidi Haugen (CalTAC), Andy Kotko (CalTAC), and Darrel James (CalTAC).

1. Identify specific opportunities by which CCST can contribute to the quality of education, particularly science and technology, in K-12, higher and continuing education sectors. Identify projects and methods of approach.
2. Advise and contribute to the science and technology content of educational curricula in California schools.
3. Advise and contribute to the utilization of advanced technology in the delivery of academic instruction.
4. Advise and contribute to the utilization of advanced technology in the delivery of academic instruction together with the creative use of educational resources to provide the education and training needed to upgrade the skills and enhance economic opportunities for Californians.



All of CCST's work on STEM Education is under the leadership of the STEM Education Committee in partnership with CalTAC. Committee met on 9/26, 1/5, and 1/26.

1. Identify specific opportunities where CCST can contribute to the quality of education, particularly science and technology, in K-12, higher, and continuing education sectors. Identify projects and methods of approach.
2. Advise on the implementation of education curricula and common core standards.
3. Advise and contribute to the utilization of advanced technology in the delivery of academic instruction.
4. Advise and contribute to the utilization of advanced technology in the delivery of academic instruction together with the creative use of educational resources to provide the education and training needed to upgrade the skills and enhance the economic opportunities for Californians.



## *Policy & Practice*

- ✧ CCST, through CaTAC and STEM Education Committee, provide a broader range of expert advice on STEM policy and practice
- ✧ CaTAC connecting with CCST Policy Fellows on STEM questions
- ✧ Other areas under consideration for CaTAC action:
  - ✧ **Strengthen** the preparation and retention of STEM teachers by working with executive staff of the California Commission on Teacher Credentialing to ensure that any individual who enters a classroom has a command of the curricular area he or she is assigned to teach.
  - ✧ **Connect** selected CaTAC members and alumni to the education and policy communities through the establishment of CaTAC Education Policy Fellows to serve as resources, guides and advocates for high-quality instruction.
  - ✧ **Inform** policies that strengthen teachers' skills and knowledge of STEM disciplines by working with partner organizations to coordinate regular briefings with state agencies, the Governor and the legislature.





## MEMBERSHIP

Jim Sweeney (chair), Patrick Lee and Joe Walkush.

1. According to CCST guidelines and taking into account CCST member distribution, identify prospective CCST members.
2. Develop and practice the system for nominating CCST members.
3. Provide to the Executive Committee for action a list of nominations for Council members and chair of CCST in a timely fashion.
4. Oversee an open process, structure, and set of responsibilities for the CCST Fellows program.
5. Develop criteria and procedures for selecting Fellows. Nominate Fellows annually.



## AUDIT/FINANCE

John Hall, Jeff Rudolph (chair), Peter Cowhey and Julie Meier Wright.

1. Work with Executive Director to review and keep current the financial structure of CCST.
2. Recommend an audit of any project, program, grant or CCST activity on an as needed basis.
3. Advise on the development of financial policies and procedures for advancement activities, contributions, and sponsorships.
4. Review and approve an annual financial report to the Board.
5. Review and approve the annual audit report to the Board.
6. Recommend investment and banking options.
7. Contribute to Council projects regarding financial implications.



## ADVANCEMENT

Amber Mace and Julie Meier Wright.

1. Oversee the broad public education and awareness initiative that positions CCST among various stakeholder groups as the source of objective science and technology assistance and advice.
2. Identify and create opportunities for the development of prospective public- and private-sector supporters and underwriters of CCST initiatives.
3. Recommend advancement/development policies, procedures, initiatives, and incentives that reflect the broad interests and perspectives of the Council balanced by the current and long-range resource needs of CCST.