Schools of the Future Report

Tom Torlakson

State Superintendent of Public Instruction
California Department of Education

September 2011

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Table of Contents

Co-chairs' Message……. 2

Executive Summary……...……. 3 - 4

School Facility Program Reform Recommendations..…… 5

Educational Impact of Design……. 6 - 12

School Site Selection and Community Impact…… 13 - 25

Modernization……...…….. 26 - 33

Funding and Governance……...…..... 34 - 40

High Performance Schools Recommendations..……..… 41

High Efficiency Schools……. 42 - 63

Renewable Energy…….. 64 - 74

Grid Neutral Schools…….. 75 - 78

Financing of High Performance Schools…… 79 - 86

Schools of the Future Team Members…… 87 - 89

Co-chairs' Message

Over the past 13 years, the state's voters have approved over $35 billion for the construction and modernization of schools. As a result, the state and local educational agencies (LEAs) have successfully partnered in the planning and construction of hundreds of new schools and the modernization of thousands of schools, creating improved learning environments for millions of students. As impressive as this is, there is still more to do to ensure that all of California's six million students attending 10,000 schools have high quality and energy efficient facilities. Given the concerns about the economy and the increasingly limited state and district resources, it is time to be even more strategic, resourceful, and creative.

Tom Torlakson, our State Superintendent of Public Instruction, stated that we cannot educate the next generation of students in schools that are relics of the past. Thus, he charged us to lead the Schools of the Future (SOTF) initiative dedicated to addressing this issue. The SOTF team was tasked with looking at school planning, design and finance, and energy efficiency. More than 90 members participated including representatives from schools, architectural firms, colleges, construction manager organizations, unions, builder associations, energy firms, and businesses.

We are grateful for the contributions of the individuals who took part in this effort as our advisory team.

Contained within this document are the recommendations of the team. We may not all agree on every recommendation; however, taken in totality, this document, together with the Superintendent's recently released *A Blueprint for Great Schools* provides a foundation for action.

Many of the recommendations contained in this document will require additional resources and legislation to implement. Many, however, are areas the California Department of Education can consider administratively now.

The work of this team is just the beginning of an initiative to improve the way we invest in the buildings our students interact in every day. And in doing so, we can create efficient and powerful learning environments that will prepare our students for bright and productive futures.

Sincerely,

Cesar Diaz
Legislative Director
State Building and Construction
Trades Council, AFL-CIO

Steve Rogers
President
San Mateo Union High School
District Board

Executive Summary

On January 14, 2011, State Superintendent of Public Instruction Tom Torlakson announced the Schools of the Future (SOTF) Initiative as part of his new administration and convened a 90-member stakeholder team.

The team was co-chaired by Cesar Diaz, Legislative Director of the State School Building and Construction Trades Council and Steve Rogers, President of the San Mateo Union High School District Board. Kathleen Moore, Director of the School Facilities Planning Division at the California Department of Education, coordinated the effort and her team provided the staff support.

The SOTF initiative gathered educators, business professionals, architects, school facility practitioners, green advocates, energy professionals, and policy makers to focus on two key policy areas: state school facility program reform and the design of high performance, green schools. "We're going to create a working team that will be looking at how our schools are constructed from top to bottom and how we can prepare the next ballot measure to meet the needs of 21st century students, as well as save tens of millions of dollars," Superintendent Torlakson stated. "Further, we will work to build energy efficiency for every school."

Superintendent Torlakson charged the team with providing him with advice in eight policy areas:

- Educational Impact of Design
- School Site Selection and Community Impact
- Modernization
- Funding and Governance
- High Efficiency Schools
- Renewable Energy
- Grid Neutral Schools
- Financing of High Performance Schools

The team met three times over a four month period, and each policy sub-committee met frequently between SOTF meetings and produced a strategy memo articulating the context and key recommendations in their respective policy areas.

Results and Recommendations

Each sub-committee strategy memo follows in this report. High priority recommendations include:

- **Educational Impact of Design:** Create the next state facility funding program to leverage multiple sources of funding, reconstruct and upgrade existing school structures, and advance 21st century design through sustainable and innovative features. Establish a *California Code of* Regulations, Title 5 (5 *CCR*) working group to ensure regulations support the creation of school sites and learning spaces that reflect the needs of 21st century teaching and learning, as well as the increasing awareness of the impact of school siting and size on environmental, economic and fiscal goals. Collect and disseminate research, resources, and best practices to assist local planning groups as they site and

design schools that are learner-centered, safe, healthy, sustainable centers of communities.

- **School Site Selection and Community Impact:** Align future state school facilities funding with state sustainability goals, including modernization/rebuilding existing schools and funding for local educational agency (LEA) master planning. Develop guidance documents and a training program on cross collaboration for LEAs and local governments and seek out opportunities for greater joint use. Encourage early communication and collaboration for land use planning processes between LEAs and local agencies. Add the State Superintendent of Public Instruction to the Strategic Growth Council.

- **Modernization:** Base funding for a new 21st Century Renovation Program on a holistic analysis of both the educational and physical plant needs and use renovation as an opportunity to improve building performance. Recognize that infrastructure components have a useful and finite life. Restore dedicated and sustained maintenance funding. Eliminate relocatable classrooms that are beyond their useful life. Increase modernization funding for renewable energy.

- **Funding and Governance:** Consider changes in the governance structure for oversight of the state's school facility investment. Prepare a comprehensive assessment of new construction and modernization needs using existing information as well as data produced from a state-wide school facility inventory. Investigate, analyze, and consider alternative funding structures for the state's school facilities investments.

- **High Efficiency Schools:** Develop the California Green Schools Recognition Program. Adopt a California Environmental Literacy Plan. Develop a low energy retrofit program and create innovative funding mechanisms to support high efficiency sustainable schools for design and construction. Leverage school procurement to promote high efficiency operations through the purchase of healthy and sustainable products and consumables.

- **Renewable Energy:** Develop standardized policies and processes to help LEAs address issues with the evaluation, procurement, financing, and construction of renewable energy systems. Support new laws and initiatives that fund renewable energy projects and broaden opportunities for schools to participate in the generation and use of the full range of renewable energy options. Develop an energy schools academy. Create an Energy Liaison position at the California Department of Education.

- **Grid Neutral:** Make regulatory changes to allow for more cost effective solar installations. Develop and implement effective energy efficiency programs and provide sufficient funding. Encourage new school construction projects and major modernization projects to be designed for true grid neutral operation.

- **Financing of High Performance Schools:** Provide new and expanded funding sources. Maximize energy production at school sites. Expand Joint Power Authorities. Incentivize local financing and the creation of Renewable Energy Credits marketplace.

School Facility Program Reform Recommendations

Educational Impact of Design
Policy Sub-committee Memo

I. Sub-committee Topic: Educational Impact of Design

Chair

- Laura Knauss, Lionakis

Members

- Tom Herman, California Department of Education, Learning Support and Partnerships
- Chuck Kluenker, Vanir Construction Management
- Carolyn Nelson, California State University, East Bay
- Linda Rondeau, Pittsburgh Unified School District
- Wendell Vaughn, Perkins+Will
- Jose Vilar, Baker-Vilar Architects
- Shannan Young, California Department of Education, Nutrition Services

Support Staff

- Barbara Ross, California Department of Education, School Facilities Planning

Sub-committee Charge

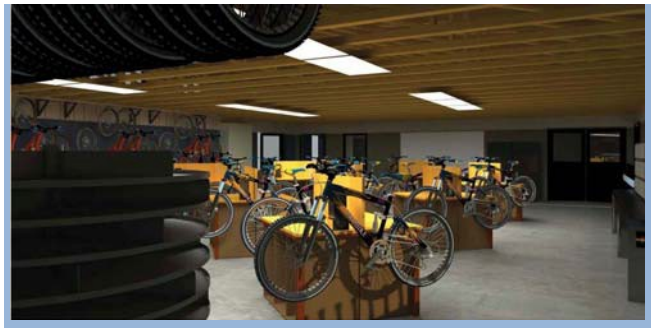
There is a substantial body of research on the impact of school facilities on educational achievement. What design principles and features should a 21st century learning environment include? The sub-committee was charged with making recommendations on design principles and features that should be considered in a 21st century learning environment.

II. Context

Recognizing that curriculum developers and instructional leaders are responding to the call for alignment to the needs of the 21st century learner, the design of learning environments will need to respond to this shift toward more personalized learning. The emergence of online learning and other instructional delivery modes affect the design and need for additional facilities. The sub-committee discussed elements of high performance schools that support student health and well-being which directly impact academic readiness, student achievement and teacher performance. Our intent with these recommendations is to create future generations of environmental stewards who are healthy, safe, engaged, supported, and challenged at their schools.

Natural day lighting and exposed building systems are integrated sustainable features in this Career Technical Education renovation project

San Juan High School Culinary WILLIAMS + PADDON Architects, Inc.



Nevada City School District has been the host of a unique bicycle recycle program at their Seven Hills (Middle) School Campus for the past 10 years.

Seven Hills Middle School
HIBSER YAMAUCHI Architects, Inc.

The body of research is clear, relevance is a key determinate of student engagement/success and is a cornerstone of 21st century instruction, so the recommendations include commitments to "hands-on" and project based learning as well as industry partnerships. These partnerships often bring with them specific facilities needs – whether project workspaces or technical lab spaces. The use of more mobile technologies in schools and the increasing use of online and hybrid courses also impacts facility design. In addition, community and family involvement were determined to be significant factors in student well-being; so providing spaces that invite the community and parent involvement were discussed.

Other areas where attention to school designs can support healthy, safe students and communities include pre-kindergarten programs, school food programs, gardens, sports and recreations programs, and routes to school that encourage walking and bicycling. All have implications for facilities design.

The ongoing significant funding shortage in maintenance and operations (M & O) commitment from the state has undermined student pride in their schools and affected academic achievement. Over the past decade districts have struggled to provide appropriate upkeep of school sites. Students are aware of the lack of funding and subsequent care in keeping schools safe, clean, and healthy places. Well designed schools that are maintained can remain in service to the community longer and are a wise investment of tax dollars.

This sub-committee looked at four broad areas that they felt could most substantially create a construction environment grounded in design principles that would help California create educational facilities responsive to educational trends, student and community needs, and develop the next generation of environmental stewards while protecting the state's infrastructure investments.

We address the future with recommendations that suggest:

1) Providing focus areas for projects in the next bond program.

2) Reviewing the regulatory guidelines and minimum standards known as *California Code of Regulations*, Title 5 (5 *CCR*).

3) Exploring ways to invest in the ongoing maintenance.

4) Collecting and disseminating research and resources on innovative school design.

Recommendation 1: Create and incentivize priorities, definitions and formulas within the next state bond program that a) leverage multiple sources of funding in a community b) re-construct and upgrade existing school structures, and c) advance 21st century design through sustainable and innovative features which are key to building high performance schools.

- **Joint Use:** Community partnerships and services can extend the use of the infrastructure investment through joint use projects to support healthy, safe communities such as: child care centers, health centers, sports and recreation facilities, community gardens, libraries, and linkages to higher education institutions.

In the process of designing **Gratts Primary Center and Early Education Center** (Los Angeles Unified School District), many groups came together in the dense urban neighborhood just west of downtown Los Angeles to focus on the joint use of the school facility, strengthening bonds between school and community through a joint use approach.

JUBANY NAC Architecture

- **Re-use/Remodel/Re-Envision Older Schools:** A new definition of modernization is needed that supports educational programs designed to meet the needs of 21st century learners, keep existing schools open in communities to prevent urban sprawl and encourage walking. Technology upgrades, re-designed classroom/lab spaces, updated food preparation, and eating areas are among the needs as well.

- **Recalculate**: A new formula should support flexible spaces characteristic of 21st century learning environments and would likely not rely on the number of "teaching stations" or "traditional classrooms" present on a schematic. The formula should put students' learning needs and teaching methods first by incentivizing high performance, sustainable features, and innovative educational delivery such as career technical education.

National research and promising projects, both here in California and across the country, are demonstrating the power of the "schools as centers of community" concept. The concept advances wise land use policies, supports safer, healthy communities, and leverages multiple state and local resources. Multiple stakeholders are recognizing the social, economic, and academic benefits to a community when various sources of funds are leveraged and infrastructure is planned strategically. Since each individual community will decide its priorities, the new bond program should be designed with flexibility to accommodate the diverse needs of California communities and ensure balance across the urban, suburban, rural, large, medium, and small districts. Some districts will find partners at the city level to develop parks and recreation while others may find a county health outreach program, a regional library board, the YMCA, or the Boys and Girls Club. The funding program should be structured to support this whole community approach to reinforce the very tenets of healthy, safe, and supported individuals.

Secondly, special attention should be given to existing facilities that will need extensive renovation and upgrades for seismic safety, utility upgrades, and technology upgrades to make them available for future electronic and 21st century teaching methods**.** These new relevant teaching strategies impact school facilities. Project-based learning, group projects, global learning, career technical education, and the wide variety of teaching and learning styles, when combined with the budget driven trend of larger class size, has a significant impact on the size, room arrangements, furniture, and equipment required in our school settings. Smaller, flexible furnishings, for example, may allow us to utilize existing spaces to accommodate more students in a group setting.

Did you know? 71% of California's classrooms are more than 25 years old. We need strategies that allow us to use these existing spaces in ways that accommodate evolving technology and pedagogy.

CDE Fingertip Facts

Healthy dining options in a food court setting make school lunch a healthy and inspiring part of the student day.

MLK Jr. Middle School Dining Commons
Berkeley Unified School District
JUBANY NAC Architecture

Just as instructional practices continue to change, so do the methods for food preparation and service in schools. With greater attention to balanced nutrition and healthy lifestyles, our school kitchens, cafeterias, and lunchrooms need to be reconfigured. Frankly, redesign of existing schools is a health and equity issue as we enter the second decade of the 21st century.

Lastly, we note that in 2008, at a roundtable event sponsored by the California Department of Education, leaders in the school facilities arena noted that "any effort to encourage more innovative and flexible school design … would likely only be minimally effective without concurrent changes to the state's funding model." There is some contention that the current funding model which counts classrooms ignores innovative school designs through a limited definition of "teaching station" and a mathematical formula that does not account for new distributed, online/hybrid teaching strategies. In any new bond program, attention will need to be paid to the development of the allocation formula to avoid the presumption that all students should sit in rows of desks in a square room in the 21st century.

Flexible, small group and individual spaces support 21st century learners.

Paramount High School
Paramount Unified School District
LPA

We recommend these three features – joint use, re-use, and recalculate – be included as state goals for the new bond and that portions of the bond be earmarked for joint use projects and re-use of existing facilities.

Selected Research: Designs

Bingler, Steven, Linda Quinn, and Kevin Sullivan. *Schools as Centers of Community: A Citizen's Guide for Planning and Design.* 2nd. edition ed. Washington, DC: [sponsored by] National Clearinghouse of Educational Facilities, 2003. http://www.ncef.org/pubs/cc/scc_Cover_page_Table_of_Contents.pdf

California Department of Education, School Facilities Planning Division. *Healthy Children, Ready to Learn: Facilities Best Practices.* Sacramento: CDE Press, 2007. http://www.cde.ca.gov/ls/fa/sf/documents/healthychildren.pdf

California Public School Construction Process Review*: A Collaborative Approach by Practitioners, Customers, and Stakeholders.* Sacramento: Department of the State Architect, 2010.

Crampton, Faith E. *"Spending on School Infrastructure: Does Money Matter?"* Journal of *Educational Administration* 47, no. 3 (2009): 305-322.

Schools for Successful Communities: An Element of Smart Growth. Scottsdale, AZ: Council of Educational Facility Planners International, 2004.

Recommendation 2: Explore options to ensure ongoing funds for maintenance and operations of school facilities to protect California taxpayers' capital investments and improve student well-being. Provide best practice guidelines to train staff on the best use of new and upgraded facilities so that improvements are realized.

School facilities are but one way that student achievement, well being, and success are impacted. They are also an excellent catalyst to inspire change and improvement. By integrating the vision for 21st century learning environments into a broader district vision, real change can happen. A new "food court" for example can inspire a healthier food service program while the inclusion of a community room may create a joint use program that previously didn't exist. And with each of these new changes, improvements in operations and maintenance will emerge. How do we deal with the increased bio-waste in a kitchen when more fresh fruits and vegetables are offered? Who stays late and which entity pays for the clean up in a joint use space? Among other operational and maintenance issues that need a dedicated fund are:

Integrated technology must be continually upgraded in order to keep "hands-on programs relevant.

Walnut Elementary School
Turlock Joint Elementary School District
LIONAKIS

- **Integrated technology:** Once the initial capital investment is made, the success of our technology rich learning environments lies in our ability to maintain and upgrade hardware and software and train teachers (and students). Trained technology specialists will certainly become an important position on 21st century school sites. This operational cost must be met and many questions answered regarding student owned or district owned hardware, responsibility of the school district for safety on the Web, etc.

- **Furnishings:** Tables and chairs with wheels, soft furniture, built-in benches, and covered shelters with solar panels…all of these items need refreshing and on-going maintenance.

- **Commissioning:** The sub-committee recommends that schools use a commissioning process and that this be built into the funding formula for new construction and all remodels. This tenet of successful, high performance schools optimizes the performance of building systems and includes a level of training that improves long term maintenance procedures. It is also important to train and educate the users of the facilities, including students, as user behavior is a key ingredient in realizing long term operational efficiency.

Did you know? Users typically underestimate their energy usage by 2.8 times. Real time energy displays can help improve user's understanding of energy usage – and students are often the ones to hold us accountable!

Public Perceptions of Energy Consumption and Savings. August 2010, vol. 107, no. 37, Proceedings of the National Academy of Science.

- **Prioritize deferred maintenance funding**: The investment we make in capital facilities programs is diminished if we cannot maintain our schools. For many years districts have struggled to maintain their facilities. Now with newer building systems – lighting controls, energy management systems, for example – require a higher level of understanding and fine tuning on a regular basis. The efficiency of high performance schools and their systems is impacted over time when regular maintenance does not occur. Ongoing funding is necessary.

Selected Research: Building Conditions

Branham, David. *"The Wise Man Builds His House Upon the Rock: The Effects of Inadequate School Building Infrastructure on Student Attendance."* Social Science Quarterly 85, no. 5 (2004). http://onlinelibrary.wiley.com/doi/10.1111/j.0038-4941.2004.00266.x/abstract;jsessionid=2D67D503AEB6ACEDE615D668B3301E71.f04t02

Kumar, Revathy, Patrick M. O'Malley, and Lloyd D. Johnston. *"Association Between Physical Environment of Secondary Schools and Student Problem Behavior."* Environment and Behavior 40, no. 4 (2008): 455-486.

Plank, Stephen B., Catherine P. Bradshaw, and Hollie Young. *"An Application Of "Broken-Windows" And Related Theories to the Study of Disorder, Fear, and Collective Efficacy in Schools."* American Journal of Education 115, no. 2 (2009): 227-247.

Recommendation 3: Create a working group to focus on regulations in Title 5 that need updating and revision to ensure the creation of school sites and learning spaces that reflect the needs of 21st century teaching and learning, as well as the increasing awareness of the impact of school siting and size on environmental, economic, and fiscal goals.

Soft comfortable furnishings make 21st century libraries inviting places for children.

Alder Creek Middle School
Tahoe Truckee Unified School District
Lionakis

In recent years, there have been a number of suggested revisions to Title 5 from a variety of interested constituents: some seeking relief from what they believe are "one-size-fits-all" square footage minimums, others hoping to align siting and acreage requirements with the state's smart growth initiatives; while still others want to see all school site designs reviewed for site safety and educational appropriateness even when no state funds are leveraged.

The state clearly must find the right balance and respond to the trend of more personalized learning, not just grade level groupings. The state must respond to 21st century neighborhoods, not just the suburban school paradigm. The state has a regulatory obligation to assure minimum design standards that assure safety and educational equity while still creating a regulatory environment that supports school designs that embrace the new instructional pedagogies, healthy lifestyles, and technology tools demanded in the 21st century.

Selected Resources: Regulatory Revisions

California Department of Education, School Facilities Planning Division. *Re-Visioning School Facility Planning and Design for the 21st Century: Creating Optimal Learning Environments*, prepared by University of California Berkeley, Center for Cities & Schools, 2008. http://www.cde.ca.gov/ls/fa/sf/documents/roundtablereport.pdf

Lee, Valerie E., Douglas D. Ready, and Kevin G. Welner. *Educational Equity and School Structure: School Size, School Overcrowding, and Alternative Organizational Structures.* Williams Watch Series: Investigating the Claims of Williams v. State of California. Los Angeles: UCLA's Institute for Democracy, Education, and Access, 2002. http://escholarship.org/uc/item/2zx2b0w5

Recommendation 4: Collect and disseminate research, resources, and best practices to assist local planning groups as they site and design schools that are learner-centered, safe, healthy, sustainable centers of communities.

Recently educators have been focused almost exclusively on the academic side of student achievement. Some would say California has not had a comprehensive view of student learning. Educational research is increasingly focusing on a broader view of student achievement. Often called "whole child" initiatives in the literature, this philosophical approach stresses the integration of mind, body, and spirit of each individual child. And in facilities design one would expect to find support for the 'mind' in an academic wing; support for the 'body' in fitness, physical education, nutrition and health; and support for the 'spirit' in theaters, rooms for art and music, choir, band, and a library or digital commons.

Technology was another area that the sub-committee discussed at some length. Some districts have robust instructional technology integration programs that include internet devices for students, digital content, staff development, and a sustainable replacement policy. Sufficient infrastructure (electrical and internet), security and storage, size of classrooms, and types of furniture are just a few of the facilities issues that emerge when increasing the use of technology in schools.

But what does this look like? The California Department of Education should expand its guidance and technical assistance to schools during the planning stages of modernization and new construction to include more digital resources and disseminate current research on topics that affect facilities design to support the broad view of student achievement. The work should include the posting of a gallery of innovative spaces, virtual tours, and interviews with the occupants and designers that would assist local groups. We do not mean for this work to produce "prescriptions" for what schools should look like. This gallery should be a broad collection of design solutions to inspire the design of schools of the future. Additionally, the state should consider providing planning facilitation to districts that are developing educational specifications and master plans.

Selected Resources: Design of Learning Environments

California Department of Education, School Facilities Planning Division. *Healthy Children, Ready to Learn: Facilities Best Practices*. Sacramento: CDE Press, 2007. http://www.cde.ca.gov/ls/fa/sf/documents/healthychildren.pdf

California Department of Education, School Facilities Planning Division. *Educational Specifications: Linking Design of School Facilities to Educational Program*. Sacramento: CDE Press, 1997. http://www.cde.ca.gov/ls/fa/sf/documents/edspecs.pdf

School Site Selection and Community Impact
Policy Sub-committee Memo

I. Sub-committee Topic: School Site Selection and Community Impact

Co-chairs

- Cynthia Bryant, California Charter Schools Association
- Mamie Starr, San Joaquin County Office of Education

Members

- Scott Clark, Local Government Commission
- Chris Cox, San Bernardino County Schools Superintendent's Office
- Gary Gibbs, California Building Industry Association
- Christopher Grimes, Roseville Joint Union High School District
- Steven Ladd, Elk Grove Unified School District
- Dwayne Mears, The Planning Center

Support Staff

- Michael O'Neill, California Department of Education, School Facilities Planning

Sub-committee Charge

The sub-committee was charged with reviewing how local educational agencies (LEAs) and communities should better collaborate in the selection of school sites. The sub-committee developed recommendations to foster joint use, smart growth, and schools as centers of community.

II. Context

In California today, school siting decisions are made by the school district with a focus on the projected population of students and a location that can meet the requirements of the *California Code of Regulations,* Title 5 (5 *CCR*) as established by the California Department of Education (CDE). Generally speaking, this system works to achieve a goal of building new schools in areas where development is occurring, with the site often "designated" by the developer. However, the current system does not often allow the school siting decision to be part of a coordinated effort to achieve a complete or sustainable community.

The relationship between school districts, land developers, and cities or counties around school siting and joint use can be tense, particularly where there is little or no coordination during each phase of the community planning process or the development approval process. Yet, all sides recognize that a quality school is a key component of a successful community and neighborhood, and vice-a-versa.

The lack of mutual understanding and collaboration between LEAs and cities and counties on school siting often leads to land use decisions that are less than optimal. There are often political and funding tensions between all affected agencies, developers, and even community members.

When this is coupled with a lack of knowledge of the planning processes, which are frequently "siloed," the ability to effectively interact for the long-term benefit of all parties is stymied.

In addition, current state funding programs, school planning processes, and siting analyses are often not aligned with the state's sustainability/health goals or the leveraging and efficient use of resources. Under the current funding regulations, districts are often more likely to seek new larger enrollment schools on larger sites, on less expensive land, farther away from the populations that are to be served, rather than reusing, rebuilding, or expanding existing sites. This is in contrast to the community and academic benefits of smaller neighborhood schools.

Actions that would address leadership, early planning collaboration, and the promotion and maintenance of healthy, sustainable schools and communities, generally include these major themes:

- Policies, practices, and funding for alignment with state sustainability goals.
- Education on, and mutual understanding of, school siting/planning processes and requirements.
- Integration of school site planning and community land use planning.

There is a tangential and related consideration when it comes to school siting – what will be the effect of future learning modalities and delivery methods, including ever-burgeoning electronic technologies, on the size and number of school sites, as well as the future of existing school sites? The implications of this do seem to support the conceptual, if not the actual, goals of sustainability.

III. Key Recommendations and Options

Recommendation 1: Align future state school facilities bond measure provisions and CDE regulations and guidance documents with state sustainability goals, including modernization/rebuilding existing schools and funding for LEA facility master planning.

- **Rationale:** Providing financial incentives and funding for pilot programs is often the best route to effect behavioral changes and to allow serious exploration and evaluation of the effects of new concepts and theories.

  The un-adopted November 2003 version of the *Governor's Environmental Goals and Policy Report* (required by state law in 1970 and consistent with the state planning priorities enacted by Assembly Bill 857 (AB 857, Statutes of 2002 [*Government Code (GC)* Section 65041.1]) states that "Schools are an important part of our "brick and mortar" infrastructure, but are also an education reform, human health, and sustainable planning issue." The overall focus of the report is on what actions the state should/could take to turn around California's fragmented and non-integrated land use planning patterns (sprawl) and the resultant high costs in infrastructure and resource utilization. School facility siting is singled out in two areas: as an example of "silo" decision making inconsistent with local growth policy; and as a development "disaster." The report states,

"The location of new schools, for example, has an important influence on land use, but siting decisions are not always made in cooperation with local land use planning agencies. This is the source of one of the most volatile and troublesome problems in California land use planning." The report continues, " '[s]chool sprawl' is another challenge for responsible land use planning."

Agree or disagree, a significant amount of funding for school site purchases, and development, does come from state bond measures. Therefore, it is not unreasonable that state goals be a part of the considerations. However, school facilities are an important part of the local infrastructure, which naturally necessitates accord at all levels.

The emerging concept of modular-student centric learning dictates only that there be a "place" for students to "sit (or stand) and connect." That does not have to be a stand-alone school facility as we know it now. It could be in the mall or the office complex or the city hall or the local entertainment venue (sports stadium). This same technology now allows students to receive information via the internet from their own home, resulting in significantly more programs that allow (and promote) greater flexibility in the delivery of educational services. This could have the long-term effect of decreasing the number and/or size of school sites. However, the school facility has been, and will probably continue to be, the social hub for young people, which raises the question of how big, how many, and where.

- **Suggested Actions to Implement Recommendation 1**
    - In future state school facility funding programs, include a restricted category of funds for pilot programs that focus on the siting or development/redevelopment of school facilities to align with local and/or state sustainability goals, including projects which focus on the development and implementation of non-traditional learning environments. (Intermediate or long term depending upon future bonds)
    - Modify Title 5 to include the requirement of a locally-approved, current school facility master plan to obtain the CDE approval of school sites or plans. This could involve listing what must be contained in an acceptable plan. (Intermediate term)
    - Require that all school facility master plans include an explanation of how the elements of the plan (specifically the location of new schools, the closing or conversions of schools, and the renovation of older schools) align with the sustainability goals of the state and with the local general plan. (Intermediate term)
    - Have the CDE provide all school districts with information on the state's sustainability goals (and policies) and how they relate to the siting and development of school facilities at the local level. (Short term)
    - Have the CDE develop guidance documents and/or procedures concerning the benefits of creating or re-creating school facilities that are consistent with

- Sustainable Communities Strategies (SCS). These SCS's have not yet been adopted, but as they are, school districts will have the opportunity to benefit from streamlining of the California Environmental Quality Act (CEQA) process as provided by Senate Bill 375 (SB 375), Statutes of 2008. Alignment with SCS will also demonstrate consistency with state planning policies and goals. (Intermediate term)

- Expand Collaborative for High Performance Schools (CHPS) criteria and any similar tools which may be used for evaluating high performance projects, to include sustainability criteria related to school siting, such as multi-story and smaller acreages, joint use, and focused use of technologies. (Intermediate to long term)

- In future state school facility funding programs, include funding priority incentives for planning and development of community-centered campuses. The regulations could include standards or criteria for defining community-centered campuses and what levels would be considered significantly above the "norm" to warrant priority considerations. (Intermediate or long term depending on funding)

- Expand the "list" of "high performance criteria" that might be considered in the review of school projects to include additional siting considerations such as, but not limited to, air quality, reductions in waste or energy for transportation, or increased health benefits. (Short to intermediate term)

Recommendation 2: Develop guidance documents and a training program on cross collaboration for LEAs and local governments. Seek out opportunities for greater joint use through collaboration.

- **Rationale:** Education of all stakeholders and decision makers, and team work are the keys to success. Collaboration will be a new paradigm for all funding programs.

  - There is a need for city/county leaders to better understand school siting processes, and for school leaders to better understand city/county planning processes in order to better collaborate.

  - There are mutual benefits of collaboration that have been demonstrated.

  - There are examples of successful collaboration to share.

  - There are existing opportunities to educate stakeholders.

  Although there are examples of successful joint use collaborations and cooperative relationships, and existing resources that can facilitate collaborations, for the most part there is a limited understanding of the distinct planning processes guiding each local entity. With no policy framework or incentive to guide local agency collaboration, communities struggle to work together on school siting. There is evidence that cross collaboration on school siting is limited, and when dialogue does occur, it tends to be late in the process when it is very costly to make changes. Local planners do not receive

training on all that is involved in the school siting process, including the extensive state requirements. School districts are not often involved in community planning processes, such as General Plan updates or development of community blueprints or sustainable communities strategies. The leaders within each "silo" do not tend to have a good understanding of the other's reality, perspective, or mandates.

Opportunities exist now that allow for innovation of which stakeholders may not be aware. Charter schools, for example, have greater flexibility on school size that can be leveraged to develop model approaches in the area of infill. Improved knowledge of examples like these can increase the opportunity to collaborate and provide maximum benefits of working together. In a forum on school siting collaboration held in Sacramento in 2008, a diverse set of stakeholder participants reported that the primary take-away theme was a need to educate peers about the distinct planning processes.

- **Suggested Actions to Implement Recommendation 2**

  - Development by the CDE, in cooperation with California school facility organizations, the Local Government Commission, local government organizations, and other related collaboratives, of a comprehensive reference list on joint use, school/local government collaboration, and examples of "sustainable" school siting. (Short term)

  - Development by the CDE of a white paper on local collaboration, that includes both school and city/county perspectives, that could be produced and disseminated primarily via e-mail. Key points to cover would include the benefits of collaboration, such as: better use of limited resources; fewer legal challenges; increased ease of implementation; and more effective policies. Readers could be reminded that:

    1) Collaboration happens along a continuum, ranging from networking and coordinating to joint activities that are based on shared vision and goals;

    2) Different levels of collaboration can be appropriate based on the circumstances;

    3) Levels of trust, "turf" issues, and time availability are factors in determining the success of a collaborative group; and

    4) The sharing and joint discussion of case studies is a valuable exercise.

  The white paper could also explore the vision of schools as anchors for their community, explaining how collaboration will benefit the multiple stakeholders within the district and community partner agencies. For example, describe how school location and joint use impact operating budgets, particularly transportation, staffing, and other operating costs (including custodial and lock/unlock services), free/reduced meals, preschool and school readiness, parent involvement, and board issues. Both school and city/county perspectives should be included. (Short term)

- Update the CDE's school siting guidance documents such as the *School Site Selection and Approval Guide* (Blue Book) and the *Guide to School Analysis and Development* (Yellow Book) with a discussion on collaboration and how it can help the school siting process, similar to what was outlined in the previous bullet point. Both sustainability and joint use could be included. The Office of Planning & Research could issue related recommendations for cities and counties. Other entities might have guidance documents that could provide similar information. (Short term)

- Update the guidance documents to facilitate development of non-traditional campus models and partnerships for the purpose of encouraging more use of existing buildings and educational facility opportunities instead of construction of new facilities. (Short to intermediate term)

- Review, and amend as appropriate, elements of the code, regulations, rules and procedures, and funding programs to assure that collaboration in school siting and the implementation of joint use is not hindered. (Intermediate term)

- Update the guidance documents to include school siting in infill areas and the effective re-use of sites for schools as well as the re-use of existing school sites. (Intermediate term)

- Prepare a white paper that focuses on joint use best practices. This could also include consideration of school sites as emergency centers. (Intermediate term)

- Develop a PowerPoint presentation and notes with key points that could be reproduced, and identify speakers to serve as the basis for session proposals at the next round of upcoming conferences where key stakeholders are involved, such as:

  - ✓ California Association of School Business Officials
  - ✓ California Chapter of the American Planning Association
  - ✓ California Charter Schools Association
  - ✓ California School Board Association
  - ✓ California State Association of Counties
  - ✓ Coalition for Adequate School Housing
  - ✓ League of California Cities
  - ✓ Local Government Commission's New Partners for Smart Growth Conferences (in San Diego in February 2012

- ✓ Or even smaller functions such as regional school facility directors meetings (Short to intermediate term)

- Create an internal training program at the CDE that could be conducted regionally, inviting other agency participants. (Short to intermediate term)

- Through the CDE, establish a group to explore ways to achieve greater collaboration with community colleges and state universities for the purpose of increasing facility joint use opportunities for school districts while at the same time maximizing the investments in higher education facilities. (Short to long term)

Recommendation 3: Reduced enrollment and school size.

- **Rationale:** Smaller enrollments are safer, require smaller sites which facilitates infill and promotes renovation of existing facilities within neighborhoods, and they are better for service to constituent neighborhoods. Smaller sites, more centrally located within the neighborhood or community, facilitate neighborhood-based activities, more biking and walking, and less driving.

  California is among the nation's leaders in high school site enrollment. A *National Center for Education Statistics* report for the 2008-2009 school year shows the average size of California schools is 31% higher than the national average. Enrollment in California primary schools is seventh highest in the 50 states plus the District of Columbia and 18% higher than the national average. The disparity is more pronounced at the secondary level. California middle school enrollment is third highest in the nation behind Florida and Nevada and is 43% higher than the national average; high school enrollment is second highest in the nation after Florida and 74% higher than the national average.

  Districts and communities realize several benefits from reduced school size. Small campuses and class size allow for greater teacher/student/parent interaction. Parental involvement in the educational program is therefore enhanced and community support and interaction becomes the norm. Additional benefits include reduced home-to-school transportation needs and increased student/staff safety and security. Urban districts may also find smaller campuses easier to accommodate utilizing smaller in-fill properties. This may reduce land acquisition costs and lessen the need to acquire property through eminent domain. A smaller, more intimate environment, especially at the secondary level, has also shown promise in reducing dropout rates and raising graduation rates.

  The report *Transforming the High School Experience*[1], highlights the successes of New York City's efforts to increase student achievement and graduation rates. Since 2002, New York City has closed many of its lower performing high schools and replaced them with smaller school sites. The effect has been positive:

  > "This report presents encouraging findings from that study, providing clear and reliable evidence that, in roughly six years, a large system of

small public high schools can be created and can markedly improve graduation prospects for many disadvantaged students. Specifically:

- By the end of their first year of high school, 58.5% of SSC ("small schools of choice") enrollees are on track to graduate in four years compared with 48.5% of their non-SSC counterparts, for a difference of 10.0 percentage points. These positive effects are sustained over the next two years.

- By the fourth year of high school, SSCs increase overall graduation rates by 6.8 percentage points, which is roughly *one-third the size of the gap in graduation rates* between white students and students of color in New York City.

- SSCs' positive effects are seen for a broad range of students, including male high school students of color, whose educational prospects have been historically difficult to improve."[1]

Student safety and security are also enhanced at smaller sites as research indicates larger schools face increased discipline issues. *Indicators of School Crime and Safety: 2010*, a joint publication of the Bureau of Justice Statistics and the National Center for Education Statistics, found:

> "During the same school year, in general, the percentage of schools reporting discipline problems was higher in larger schools than in smaller schools. For example, 52% of schools with 1,000 or more students reported that gang activities occurred during the school year compared to 10 to 22% of schools with fewer than 1,000 students who reported this discipline problem."[2]

The apparent tie between higher enrollment and increased discipline problems should also be at the forefront of alternative education site selection and sizing discussions. Alternative education settings should be central to the students they serve with class sizes reduced to provide a lower student-to-teacher ratio, facilitate student learning, and enhance security. However, pupil grants must be increased sufficiently to offset the reduced construction dollars available to districts and county offices that result from reduced loading standards.

A National Institute of Building Sciences study identifies four mechanisms for creating smaller schools: 1) renovate and redesign existing schools, 2) reorganize existing schools, 3) utilize satellite facilities, and 4) build new small schools. School Facility Program grants can directly support two of these options.

[1]Howard S. Bloom, Saskia Levy Thompson, Rebecca Unterman. *Transforming the High School Experience: How New York City's New Small Schools are Boosting Student Achievement and Graduation Rates*. New York: MDRC, 2010.
[2] Daniel L. Duke, Thomas DeRoberto, Sarah Trautvetter. *Reducing the Negative Effects of Large Schools*. Washington D.C.: National Clearinghouse for Educational Facilities, 2009.

Through the use of modernization grants, districts may renovate and redesign existing facilities to create a "school within a school." This is especially effective at the secondary level where campuses can be divided into specific areas and reorganized along curricular lines.

New construction grants used to build smaller schools must be adequate to fund the loss of economies of scale that occur with building larger sites. A restructuring of new construction grants must also address a move towards high performance and "green" schools which will enhance the educational environment and help reduce long-term operational costs. Districts utilizing a combination of these approaches will quickly realize their transition to smaller schools.

Reduced site size implies districts will be required to operate a larger number of campuses. It is assumed that this may increase personnel costs if additional administrative overhead is required. Furthermore, the district might also see an increase in overall operational cost, especially utility costs, due to running multiple campuses. However, there is at least one out-of-state study which suggest that this does not have to be the case, and that purported savings from consolidations or having larger plants might be misstated or overstated. This dichotomy indicates that each district should analyze their individual situations rather than having the creation of mandates. If the desire is to have schools improve their impact on the community, considering a smaller school should be part of the equation, even in tough fiscal times.

It is probable that increased costs would not occur when a district elects to renovate and redesign an existing school, assuming that it is in a location that can effectively and efficiently serve a student attendance area and/or neighborhood.

- **Suggested Actions to Implement Recommendation 3**
    - Develop legislation to formulate new funding mechanisms to offset the costs of smaller campuses. As with the class size reduction program, districts will be required to hire additional staff and fund additional operational needs. Additional district funding may be accomplished through increased average daily attendance funding or by creating a separate funding category for site size reduction. (Intermediate term)
    - Develop a library of case studies that demonstrate successful joint use projects that effectively result in a more efficient use of land and other resources while at the same time facilitating smaller school sizes. Rural schools are generally smaller than their urban or suburban counterparts and they often have special needs; however, they also tend to function very well in meeting rural community needs. There are elements of rural schools that could provide effective models for joint use collaboration. (Intermediate term)
    - Convene a series of meetings to examine and develop ways in which smaller school sizes can be effectively and economically implemented, particularly in urban and suburban areas. (Intermediate term)

- Research the hypothesis that smaller plants are less costly to operate on a per student, or per square foot basis, than larger plants. (Intermediate term)

Recommendation 4: Encourage the formation of local school site selection committees and require that LEAs consider local land use plans and state sustainability goals in the analysis of school siting.

- **Rationale:** LEA decision making needs to be expanded to recognize that the decision to provide enough schools for projected population can take into account other community impacts as well.

  School buildings are physical infrastructure and have an impact on the community beyond providing space for educating students. Even under today's system of siloed planning, school siting can be done taking into consideration all state and local community goals for sustainability if they are included in the local deliberations.

  For example, if an LEA considers the desire of a community to reduce the health impacts from infrastructure projects, it may choose smaller school sites that would allow children to safely walk or ride bikes to school. Even if the city or county government organization is ignoring sustainability principles, the LEA can provide leadership by looking for ways to site schools in a manner that encourages infill, for example:

- **Suggested Actions to Implement Recommendation 4**

  - Development by the CDE of a suggested checklist of sustainability features of site selection that LEAs can consider as they make siting decisions. (Short term)

  - Establishment of a recognition program by the State Superintendent of Public Instruction (SSPI) for sustainable site selection efforts. (Short term)

  - Require a resolution by the LEA at the time of approval of a school site describing how the site meets sustainability goals. Requires legislation. (Long term)

Recommendation 5: Encourage and/or mandate early communication and collaboration for land use planning processes between LEAs and local agencies and joint statements from affected local agencies.

- **Rationale:** Collaboration can stretch state and local dollars and create schools and neighborhoods that support each other. Collaboration at early planning stages can drastically reduce later "development time" conflicts between developers, local governments, and school districts.

  With the billions of local and state dollars invested in school facilities statewide, and with California in the midst of a massive and unprecedented budget deficit, it is critical that the state look at every possible opportunity to ensure that funding is used as efficiently as possible. There can be overall cost savings where school districts are collaborating with cities and counties as early as possible to choose new school sites that maximize use of

existing or planned infrastructure (e.g., roads, utility lines) and services (emergency response, public transportation), and to ensure that schools are located central to the existing and/or projected school attendance areas. Schools are an element of infrastructure that is directly related to the existing or planned housing stock. Consideration of school sites is as important in development of redevelopment, or conversion areas, as it is in areas of new development.

Where there is communication between school districts and cities/counties on school siting, it often comes late in the process. The later in the process, the more money and energy has been invested making it more difficult to change a plan. School districts have the authority to overrule local land use plans created by local governments, but where a school is located impacts cities and counties, which can include budget impacts related to providing key infrastructure and critical services. An early, long-range view of transportation and infrastructure allows for the purchase of school sites at lower cost with the guarantee that the planning outlined will come to fruition. This will also help reduce the friction that comes when districts move to purchase property. In the absence of a comprehensive clear long-term plan, districts often end up at odds with developer(s) and/or the local governmental entity because these latter institutions may have "other plans" for specific properties. Assuring that school sites are integrated into long-range local plans at the outset, and in subsequent specific or community plans, is essential.

School districts also have major limitations on where a school can be located, when all regulations and costs are considered. Yet, all can agree that a quality school is a key part of a thriving neighborhood, and that a quality neighborhood helps make a successful school. If conversations about future school location can happen early and regularly, with each side supporting the other's planning efforts with data, neighborhood quality of life and district quality of education can be aligned. With a more collaborative process, there is less chance that cities/counties will treat school districts as a developer with land use authority, and instead consider them more of an ally in community building. Where relationships are positive, cities and counties can serve as advocates for districts, helping in the acquisition of sites near existing or planned infrastructure and services, or possibly to mitigate some of the costs related to infill siting or modernization.

- **Suggested Actions to Implement Recommendation 5**
    - Issue a joint memo and/or pronouncement from key agencies, such as the SSPI, the heads of League of California Cities/California State Association of Counties which describes the benefits of collaboration. (Short to intermediate term)
    - Regulatory approaches could include changes that would require early communication with cities and counties by the school districts, but that strive to minimize impact on an already challenging process. For example, the *Education Code* and/or Title 5 could be modified and/or clarified in a variety of ways:
        - Require notification of local government agencies when a facility planning process is initiated.

- Required communication could be expanded from notification to soliciting local government participation, such as a formal invitation to join a site selection committee (if the district has one).

- Encourage districts to consult with cities/counties to assess essential public services/infrastructure that are already in place, costs of providing any missing services, and any potential joint use facilities owned/operated by the local government.

- In the section, "determining who will select the site," the CDE's *School Site and Selection Approval Guide* (Blue Book) suggests using a "selection team" process as opposed to a staff-only process. This recommendation could be reinforced in statute or regulation; however, to ensure that the process is not overly burdened or delayed, such a change should be carefully considered before enacting. The list of stakeholders to invite to participate as part of a team should include key local government agency staffers, appointed officials (for example, planning commissioners), and elected officials. Comprehensive inclusion of school siting in the local general plan process could be a very effective alternative to a committee. The general plan process automatically brings together local appointed and elected officials, as well as providing a solid and repetitive venue for public participation. Funding for development of collaborative prototypes (pilots) could be part of a state school facilities bond. (Short to intermediate term)

- Require that all local general plans: include general locations of school sites relative to the existing and projected housing densities shown on the general plan land use map; specifically include consideration of high schools and colleges in the circulation element of the plan; include Title 5 school siting "safety hazards" in the safety element of the plan; and have policies relative to the joint development, operation, and use of community facilities, including schools. This will require legislation. (Intermediate to long term)

- Expand the parameters of *Government Code* Section 65402 (and related *Education Code* Section) relative to general plan review for school sites. The focus should be on the process which causes the local planning agency (ies) to collaborate with the local school district in good land use planning. (Long term)

Recommendation 6: Add the State Superintendent of Public Instruction to the Strategic Growth Council and education stakeholders to state planning workgroups.

- **Rationale:** Coordination needs to be at all levels of government. The Strategic Growth Council is a cabinet-level committee tasked with coordinating the activities of state agencies to: improve air and water quality, protect natural resources and agriculture lands, increase the availability of affordable housing, improve infrastructure systems, promote public health, and assist state and local entities in the planning of sustainable

communities and meeting Assembly Bill 32 (AB 32), Statutes of 2006, goals. The goal is a more sustainable California, environmentally, socially, and economically.

The Strategic Growth Council is developing new systemic processes that increase interagency coordination and cooperation around state sustainability goals and objectives; is working to improve the understanding of the importance of comprehensive land use/infrastructure planning, resource planning and management, and quality of life issues including health and economic opportunity and the roles of state, regional, and local government; and is finding ways to increase the ability of the state to facilitate innovative ideas and projects and distribute best practices that help cities, counties, and regions incorporate state sustainability goals and objectives.

The glaring absence of "school" persons involved in the development of the 2003 *Governor's Environmental Goals and Policy Report* provides a good example of policy-making in this area without the input of the SSPI. If the goal of the school siting decision is to be part of a coordinated effort to achieve a complete or sustainable community, then the state needs to provide the leadership by adding the education silo to the body charged with increased interagency coordination.

- **Suggested Actions to Implement Recommendation 6**
    - Sponsor legislation to add the SSPI to the Strategic Growth Council. (Intermediate term)
    - Encourage full participation of the CDE and local school district representatives (board members, staff, or administration) in all Strategic Growth Council working groups. (Short to intermediate term)
    - Include school facility representatives in the review and revision of the Environmental Goals and Policy Report as well as other activities or report undertakings that deal with collaborative land use planning. (Short term)

Modernization
Policy Sub-committee Memo

I. Sub-committee Topic: Modernization

Co-chairs

- Terry Bradley, School Business Consulting, Inc.
- Bruce Hancock, Hancock, Gonos & Park, Inc.

Members

- Paul Cohen, Northern California Carpenters Regional Council
- Joe Dixon, Santa Ana Unified School District
- Tom Duffy, Coalition for Adequate School Housing
- Richard Duncan, DC Architects
- Patti Herrera, Murdoch, Walrath, & Holmes
- Stuart Markey, Parsons
- Mary Morris, HMC Architects
- Robert Olin, Brutoco Construction Management Group, Inc.
- William Orr, Collaborative for High Performance Schools

Support Staff

- Dave Hawke, California Department of Education, School Facilities Planning
- Fred Yeager, California Department of Education, School Facilities Planning

Sub-committee Charge

The Modernization Sub-committee was charged with developing recommendations related to the following topics:

- Improving the current modernization program including, but not limited to, modifying facilities to meet the Americans with Disabilities Act (ADA) and taking into consideration the importance of providing adequate funding on an annual basis for campus maintenance.

- Developing a future modernization program that will allow for the transformation of existing school space into 21st century learning environments.

II. Context:

Research has consistently shown that students' academic performance increases when the schools they attend are clean, well maintained, and possess the classroom teaching tools that support a 21st century learning environment. Studies also show that student attendance rates increase when students know their school leaders and their communities are willing to invest in quality school facilities. Finally, the ability to attract and retain talented, high quality teachers and support staff is unequivocally related to the presence of well-maintained facilities equipped

to support a 21st century learning environment; and it is quality teacher and support staff who play a significant role in students' successful performance both in and out of the classroom.

Since the late 1970's, with the implementation of the Deferred Maintenance Program, the state of California has recognized the need for school districts to maintain the investment taxpayers have made in public K-12 school facilities through the passage of state and local school bond measures. Unfortunately, the current economic downturn has resulted in a significant reduction in resources at both the state and local level devoted to maintaining California's schools presenting additional challenges to the preservation of a high quality learning environment in the state's schools.

Since the beginning of the state modernization program in the 1980s, the state has provided billions of dollars of matching funds for modernization projects. Despite this investment, the need to direct additional state and local funds for the modernization, renovation, and/or replacement of school buildings continues. As the following points illustrate, thousands of students throughout the state are housed in buildings that were built more than 50 years ago.

- Approximately 30% of all California public school buildings are 50 years old or older.
- The average age of the public school buildings in the Los Angeles Unified School District, even after including the more than 130 new schools built and opened within the last decade, is 41 years.
- Senate Bill 50 (SB 50), which created the current state school building program, was a response to the rapid growth in student population in the state which created a tremendous need for new school facilities. The modernization and renovation needs of the state's aging school buildings were a secondary consideration throughout the debate on SB 50.
- The need to renovate, repair, and upgrade the state's aging inventory of school buildings is critical if California children are going to be afforded the opportunity to receive a first class education that will allow them to compete in our global society.

In order for California public school students to reach their highest potential and compete both nationally and internationally, state and local school district leaders must place a renewed emphasis on immediately providing the resources necessary to maintain and modernize the state's aging schools and in the long-term to convert our once state-of-the-art campuses built during the past 100 years into 21st century learning environments.

III. Key Recommendations and Options

After reviewing the three topic areas given to the Modernization Sub-committee, members of the team condensed the topic areas to two main areas by combining recommendations related to the "current" modernization program, campus maintenance, and the Americans with Disabilities Act (ADA) into one topic area and folding educational modernization into the "future" modernization topic area. Team recommendations along with the rationale, analysis of the source of the problem, and description and analysis of the proposed solution follow.

Current Modernization Program

Recommendation 1: Restore dedicated and sustained maintenance funding. (Short Term)

- **Rationale:** School campuses throughout the State of California are falling into a state of disrepair because of a lack of resources dedicated by local school districts to the daily upkeep of campuses, the regularly scheduled maintenance of campus infrastructure, and the major repair and/or replacements of roofs, HVAC units, flooring, painting, etc.

- **Analysis of the Source of the Problem:** Because of the state's financial crisis that started impacting school districts in 2007-08, legislation was enacted effective with the 2008-09 fiscal year to assist school districts in dealing with their budget shortfalls by providing "flexibility" to school districts on the allocation of funds for certain categorical programs including the use of deferred maintenance funds. In addition, school districts are no longer required to dedicate 3% of its combined state and local revenue into a Routine Restricted Maintenance (RRM) account to be used solely for campus maintenance.

- **Proposed Solution:** Restore and sustain the Local educational agency (LEA) requirement to set a deposit at combined 3% of state and local revenues into their RRM and Deferred Maintenance Accounts. Further, ensure that RRM eligible expenditures follow the definition of maintenance included in the California Accounting Manual, but that routine maintenance performed by custodial staff members be classified as an eligible expenditure as long as the expenditure can be documented for audit purposes. Legislative action is required.

Recommendation 2: Eliminate relocatable classrooms that are beyond their useful life. (Short Term)

- **Rationale:** School districts should have the option to replace relocatable classrooms that are beyond their useful life without incurring a reduction in eligibility for new construction funding under the State Allocation Board (SAB) regulations adopted to implement SB 50, the current state school building program.

- **Analysis of the Source of the Problem:** Unless a school district qualifies for the replacement of a relocatable classroom under the Overcrowding Relief Grants Program (ORG), a school district cannot replace a relocatable classroom with a permanent classroom without having a negative impact on its new construction eligibility as determined through SB 50. Thus, school districts typically repair and/or modernize relocatable classrooms that no longer provide an educationally adequate classroom environment.

- **Proposed Solution:** When the cost to adequately renovate a portable classroom reaches 50% or more of the cost to replace the portable, districts should be given the choice to replace the portable with new construction student grants and that the portable be taken out of use. Legislative action is required.

Additionally, a new generation of high performance prefabricated classrooms designed and manufactured to be permanent structures are now available. These classrooms are third party "pre-certified" to meet the Collaborative for High Performance Schools (CHPS) criteria.

Recommendation 3: Improve access and fire and life safety regulatory interpretations. (Short Term)

- **Rationale:** Laws and regulations, and the interpretation of such by state agencies, can create delays in, and add cost, to modernization projects.
- **Analysis of the Source of the Problem**: Existing statutes and interpretation of regulations by the SAB and the Division of State Architect (DSA) limit flexibility in complying with minimum code requirements, nor do they provide sufficient funding to meet those requirements.
- **Proposed Solution:** Following are proposed solutions to improving access and fire and life safety regulatory interpretations:
    - The SAB should amend its Excessive Cost Hardship Grant for Accessibility and Fire Code Requirements (Section 1859.83) to provide a true 60% of the cost to upgrade facilities to meet the minimum work required by the DSA, including, but not necessarily limited to, a grant augmentation of at least 7% that was originally discounted from the modernization grant when it was developed in 2006. Additionally, the SAB should eliminate the cap on the grant augmentation. The cap is the difference between the new construction grant and the sum of the state and local share of the project's base grant. Regulatory action is required.
    - The DSA should consider streamlining the approval process for high proprietary systems such as Automatic Fire Sprinkler Systems (AFSS) through the possible implementation of a program similar to the former deferred approval process. Regulatory action required.

Recommendation 4: Increase modernization funding for renewable energy. (Short Term)

- **Rationale:** In order for school districts to consider renewable energy solutions when developing plans and specifications for the modernization and/or renovation of existing facilities throughout the school district, the state should financially support the cost of the solutions in a manner similar to what it does for new construction projects. Further, in tandem with energy efficiency, adding renewable energy components to modernization projects will result in a reduction in energy costs thus providing school districts with increased funds for the general operation of their schools.
- **Analysis of the Source of the Problem**: The existing modernization funding model does not provide adequate funds to truly modernize existing school facilities that are at least 25 years old into 21st century learning environments and to add renewable energy components. An increase in modernization funding would increase the limited funds available for much needed educational environmental improvements.

- **Proposed Solution:** Improve the ability of school districts to include renewable energy components in their modernization projects by implementing the following changes:
    - Support Senator Lowenthal's current legislation Senate Bill 128 (SB 128) which would allow modernization grants to be used for renewable energy technology, such as solar projects.
    - Encourage the California Department of Education (CDE) through its representative on the SAB to lead a regulatory change that would provide matching grants (60-40) for energy renewable components. Regulatory action required.

Recommendation 5: Establish an additional grant for modernization infrastructure. (Short Term)

- **Rationale**: Unlike new school construction projects that receive additional grants for service site, utility, off-site, and general site improvements except in limited circumstances, the modernization program was not designed to provide additional grants for these types of projects even though service site, utility, and general site improvements must be dealt with when modernizing schools that are at least 25 years old, and, in many situations, over 50 years old. Further, the current state modernization program does not provide financial assistance for school districts to implement seismic mitigation measures at school sites that have been identified with seismic issues, and the current seismic mitigation program has proven difficult for schools to access.
- **Analysis of the Source of the Problem**: Infrastructure needs unrelated to a building are mainly overlooked on modernization projects because the funding for modernization is inadequate to upgrade learning environments.
- **Proposed Solution**: Encourage school districts to address much needed infrastructure improvements by establishing an infrastructure grant allowance for modernization projects (60/40 match) such as the additional grant allowances provided for infrastructure needs for new construction projects. The infrastructure grants should be based on documented needs. Regulatory action required.

Future Modernization

It is an inescapable reality that most of California's "schools of the future" are already built and in use. Thus, a future renovation/rehabilitation program that will allow for the transformation of *existing* school space into 21st century learning environments is vital. To achieve the goal, the 21st Century Renovation Program should contain the following:

Recommendation 1: Funding in the 21st Century Renovation Program is based on a holistic analysis of both the educational and physical plant needs. (Intermediate Term)

- **Rationale:** The requirements to renovate an existing school building sufficiently to make it a true 21st century learning environment differ dramatically from school to school and district to district. Even if the current funding model were more generous and state building regulations less restrictive, it would still underfund some buildings while

conceivably overfunding others. Available resources should be targeted to accomplishing a defined outcome using standards agreeable to all.

- **Analysis of the Source of the Problem:** The current School Facility Program (SFP) modernization funding model relies on a per pupil grant which has no relationship to the needs of the facility being modernized. Today, school buildings eligible for modernization range in age from 25 to as much as 100 years or more; yet, except for a modest supplement given to those more than 50 years old and a capped supplement for access compliance requirements, no other consideration is given to the scope of the need in each building. Because the funding bears no connection to the need of each project, even increased grant amounts would perpetuate the funding inequity by underfunding some projects and overfunding others.

- **Proposed Solution:** Create a 21st Century Renovation Program through legislation that funds the "needs" of a school classroom, building, and site to bring it to 21st century standards in the following ways:

    - Under the guidance of the CDE with assistance from the DSA, develop minimum educational and building performance standards. Permit "state level" standards to be enhanced and/or altered through locally created, CDE approved five-year master plans that contain a thoroughly developed educational specifications component.

    - Perform a "needs" assessment of eligible buildings using a uniform, statewide building condition index that rates and prioritizes the physical condition of the building and the ability to support the delivery of 21st century education. The building condition index measures the state and local minimum educational and building performance.

    - Using the results of the assessment, needed educational, building system, and energy efficiency renovation are identified and a cost assigned. A projected life-cycle cost analysis assists in prioritizing system needs and funding. District developed five-year plans are used to prioritize educational support funding.

Recommendation 2: Use building renovation as an opportunity to improve building performance. (Intermediate Term)

- **Rationale**: Many existing buildings can be renovated to meet 21st century educational standards with properly focused, knowledgeable planning and funding. California's existing schools present an opportunity for significant energy efficiency gains with minimum financial commitment.

- **Analysis of the Source of the Problem**: The current SFP modernization funding model provides limited incentives for energy efficiency, but it does not fully recognize the unique renovation needs of older school buildings.

- **Proposed Solution**: Within the 21st Century Renovation Program, incentives in the form of funding and education target an energy efficiency improvement of at least 50% over

the baseline performance of the existing building through existing building renovation utilizing a variety of techniques. In addition, 21st century renovations should utilize an integrated design approach to upgrade the major building systems including heating and cooling, natural daylight and electric lighting, building envelope, and interior finishes.

A percentage of the operational savings realized as a result of 21st Century Renovation Program funding is dedicated by the district to a revolving fund for additional energy conservation projects and/or on-going maintenance needs within the district.

Post occupancy performance evaluations using available tools and metrics are funded to ensure that energy efficiency and building performance targets are met and sustained.

Recommendation 3: Shared funding for mandated, legally required components. (Intermediate Term)

- **Rationale:** The 21st Century Renovation Program recognizes that seismic safety, fire and life safety, and ADA compliance requirements benefit all and are a shared responsibility and require full state participation. All building and educational needs, including those created by state and federal mandates, are recognized within the funding model.

- **Analysis of the Source of the Problem:** The laws governing modernization of public school buildings in California impose significant and costly requirements on every project. In some cases, simply meeting these basic safety and civil rights needs completely exhausts the available modernization funding leaving the local district unable to fund even fundamental system upgrades. Educationally related improvements cannot even be considered. Worse yet, in the most severe situations, even the state modernization funding is insufficient for safety and ADA mandated improvements, and district resources must be used to accomplish nothing more than state and federal requirements leaving modernization of any real sort impossible.

- **Proposed Solution**: The 21st Century Renovation Program recognizes all needs - - both systems and educational. The project needs are assessed using a complete scorecard of requirements, mandates, and essentials, as well as improvements, to bring the facility into the 21st century as a learning environment. School district planners, parents, and teachers are never required to choose between having operational heat, modern technology, or access compliance improvements.

Recommendation 4: Recognize that infrastructure components have a useful and finite life. (Intermediate Term)

- **Rationale:** Replacement of existing buildings that cannot be made into 21st century learning environments is an essential tool that must be available to districts.

- **Analysis of the Source of the Problem**: Under the current modernization program, there is no funding available to replace existing buildings. While modernization funding may be combined with additional district funding to do “replacement-in-kind”, the additional burden on the local resources can be, and usually is, prohibitive. Districts are forced to spend modernization funds on buildings which cannot be made educationally,

environmentally, or physically adequate. The buildings remain on the district's "inventory of adequate classrooms" virtually forever no matter how inadequate they actually are.

- **Proposed Solution**: Using the building condition index mentioned previously, the overall adequacy of a facility is measured. The costs for renovating it to 21st century standards are developed and are compared against a true replacement cost. When the renovation costs exceed a specified percentage of replacement, or when the building cannot be made adequate at any cost, a replacement option with appropriate funding is provided. Additionally, the replacement of aged, energy inefficient, and educationally inadequate portables is encouraged and incentivized. A first priority is given to sites with disproportionate numbers of portable classrooms. The decision to modernize, reconstruct, or replace is a district choice based on community needs and building analysis.

Recommendation 5: Protect the investment in our schools.

- **Rationale:** Funding based on need assumes and requires a commitment from districts to maintaining facilities to a prescribed standard. Failure to do so should not impose a funding burden on the state.

- **Analysis of the Source of the Problem**: In the current program, the failure to adequately maintain buildings does not directly impose a statewide burden since the modernization funding is the same for buildings of all conditions and ages. However, when funding is based on need, a standard of care must be established, measured, and maintained as a matter of equity.

- **Proposed Solution:** Requests for participation in the 21st Century Renovation Program are accompanied by evidence of on-going local efforts to maintain and operate facilities efficiently and effectively within available resources. Master plans, five-year maintenance plans, and educational specifications are a part of an effective local effort. Following a renovation project, a district will ensure that the project is maintained in good repair, working order, and condition.

Funding and Governance
Policy Sub-committee Memo

I. Sub-committee Topic: Funding and Governance

Chair

- William Savidge, West Contra Costa Unified School District

Members

- Cathy Allen, Coalition of Adequate School Housing
- Eric Bakke, Los Angeles Unified School District
- Steve Castellanos, Caldwell, Flores, Winters, Inc.
- Stephen English, Advancement Project
- Mahendra Mehta, Prefast Plant Crafted Buildings
- Jeff Vincent, University of California, Berkeley, Center for Cities & Schools

Support Staff

- Monique Ramos, California Department of Education, Legislative Affairs

Sub-committee charge

The sub-committee was charged with reviewing current funding proposals such as Assembly Bill (AB) 331 (Brownley, 2011) and develop recommendations for cost savings while considering the need for complete schools. The sub-committee reviewed the current governance structure of the Office of Public School Construction, Division of State Architect, Department of Education, and State Allocation Board and made recommendations for streamlining.

II. Context

In 1998, the Legislature passed Senate Bill (SB) 50 (Greene, 1998) which created the School Facilities Program (SFP). The SFP encouraged the building of new schools and modernizing older schools to ensure students had quality educational facilities.

Over the past 12 years the state has invested $35.4 billion dollars in schools facilities – matched by billions of local bond dollars. With the collapse of the housing market and economic downturn in 2008, the State of California suffered unprecedented budget deficits. The ongoing deficit has prevented the state from going out for a 2010 school bond; it remains to be seen if the state will proceed with a 2012 school bond.

With limited dollars remaining from Proposition 1D of 2006, and lack of data to demonstrate the state's need for new school construction, school modernization, and seismic safety, this document makes short and long term recommendations to fund California school facilities.

III. Key Recommendations and Options

Overall Recommendation: The state should continue to provide school facilities funding, in combination with shared local funding, as a priority infrastructure investment for California.

Recommendation 1: Immediately as a precursor to a complete inventory, and to inform consideration of the next state school bond measure, the California Department of Education (CDE) should prepare a comprehensive assessment of new construction and modernization needs using existing capacity and demographic information and projections, as well as, data produced from a statewide school facility inventory as proposed under Recommendation #3 .

- **Rationale:** To properly assess the need for – and the most appropriate structure and size of – a new state school bond measure, the state needs to collect and analyze information from several agencies, specifically the Office of Public School Construction (OPSC), the Department of Finance (DOF), and the California Department of Education (CDE), to determine:

    a) The number of new facilities needed to accommodate expected enrollment growth and remedy existing overcrowding, and

    b) The extent to which older facilities are in need of state assisted modernization.

- **Analysis of the Source of the Problem:** Information necessary to determine the need, best structure, and size for a new bond measure is presently spread over several agencies, with none having responsibility for making a comprehensive analysis. Accordingly, for some prior bond measures, the legislative process has not been informed by reliable need projections, but rather by an absence of such projections or by differing estimates of need based on different data sets.

- **Description of Analysis of the Proposed Solution/Strategy:** The State Superintendent of Public Instruction (SSPI) should direct the CDE's School Facilities Planning Division to prepare a comprehensive projection of the state's new construction and modernization needs using information from the OPSC and the DOF, as well as its own records, and those of other agencies where appropriate. For new construction, existing overcrowding and expected enrollment growth should be assessed by districts. Need should be projected through 2016 and also for the next ten years.

Recommendation 2: (Short term) The CDE should develop and implement detailed proposals for changes in the current funding structure so that:

- ✓ The state's share of new construction and modernization costs is realistically aligned with the state's historic cost sharing commitments and is sufficient, in combination with the designated local share, to enable districts to provide schools with high-quality learning environments.

- ✓ Provide flexible, efficient, and cost effective school project delivery methods.

- ✓ The state's purchasing power is utilized.

- ✓ State funds are distributed equitably in accordance with need, and districts and county offices of education without local funding capacity are enabled to complete needed projects.

- ✓ There are dedicated and predictable state funds for maintenance and repair.

- **Rationale:** These five proposals were suggested to address needs for the next generation of the SFP. The goal was to strike a balance ensuring high-quality learning environments, stretching limited facility dollars, and keeping the current investments in good condition so they last as long as possible.

- **Analysis of the Source of the Problem:** The SFP has constantly tried to balance the limited dollars for school construction and modernization with Californians' desire for schools that meet students' needs. Regardless if construction money comes from developer fees, local, or state bonds, districts face a finite amount of resources and an ever growing list of needs. This recommendation looks into the system to find possible cost-savings so districts can utilize saved dollars to meet their individual needs.

- **Description of Analysis of the Proposed Solution/Strategy:** When the legislature flexed categorical funds in 2009, maintenance and repair dollars were some of the first things districts were forced to re-direct. Once the state budget begins to stabilize, it will be important for the state to dedicate an annual appropriation specifically for maintenance and repair of facilities. If schools and facilities are not maintained, they will not have long lifecycles.

  Since the state system has limited resources, the state needs to ensure those resources are being equitably distributed so that California does not end up with "haves" and "have-nots" in relation to school facilities. The next bond or state funding model should provide specific relief to school districts that are unable to raise revenue for their school facilities needs.

  Utilizing state purchasing power for construction or modernization supplies could help save districts money. This could be as simple as a state message board where districts freely work together to communicate their purchase needs and work with other districts to leverage their combined purchasing power. Another option is allowing school districts to work through their county office of education or create a Joint Powers Authority (JPA) for the purpose of purchasing power.

  Often best practices are shared among school districts at school facilities conferences. However, small districts that rarely build or modernize may not participate in school facilities conferences given their limited building needs. Sharing best practices on an online message board or through webinars at the OPSC Web site will allow all districts to learn from each other.

Finally, if the state continues with a percentage match program, districts need to be assured the percentage they were promised in the bond covenant will be what they actually receive. Although high-quality learning environments differ from district to district, the state's share should be enough to provide a high-quality learning environment in all school districts.

Recommendation 3: (Short Term) The state should structure and compile a state-wide school facilities inventory that includes:

- ✓ Existing school facilities, including charter schools, and assessments of their condition, including but not limited to, structural seismic and Americans with Disabilities Act (ADA) compliant building systems[1]
- ✓ Existing energy efficiency and renewable energy systems, capabilities, and potentials[2]
- ✓ Educational needs

- **Rationale:** California has operated the SFP program for 12 years, without any statewide data on the need for new school facilities, modernization, or maintenance and repairs. Operating without any data makes it challenging to estimate the short and long term needs for adequate school facilities in California.
- **Analysis of the Source of the Problem:** Assuming Recommendation 1 is adopted, the state would only have information on the schools that have been built or modernized. There would still be a lack of data on facilities that have not been modernized during the last 12 years. The state has no information about the condition of those school facilities. Without that information the state cannot ensure the most dilapidated facilities are being repaired or replaced. In addition, the lack of data makes it very difficult to evaluate the success of California's SFP and plan for the future of the SFP.
- **Description and Analysis of the Proposed Solution/Strategy:** A statewide school facilities inventory could range from the condition of a facility to the education appropriateness of each classroom. Given the amount of data that could be collected in a school facilities database, it is important to thoroughly consider what the state wants from a facilities inventory and how much it wants to spend. The SSPI should take a leadership role in bringing legislative leaders and the Governor together to discuss the need for a school facility inventory and the goals of the inventory.

[1] For this purpose the state should evaluate the relative benefits of using (1) outside vendors who have prepared such inventories for other states, or (2) district-populated databases such as FORMAT-Pro, or (3) data collection structures such as those employed by the American Society of Civil Engineers in its survey of the nation's school facilities.
[2] For this purpose the state should consider utilizing the U.S. Environmental Agency's Portfolio Manager.

Recommendation 4: (Intermediate term) The State Superintendent of Public Instruction should investigate, analyze, and consider alternative funding structures for state school facilities investments, with particular attention to:

- ✓ The possible use of dedicated revenue sources or dedicated general fund facilities investment formulas as previously recommended by the Legislative Analyst's Office 2001 report
- ✓ Other states' funding structures
- ✓ A state infrastructure bank
- ✓ Varying levels of state regulatory authority relative to the level of state funding
- ✓ Providing districts with increased bonding capacity

- **Rationale:** The building or modernization of a school involves years of planning before the first shovel ever goes into the ground. School districts put in thousands of dollars for a school construction project before they come to the state for matching funds. Because school districts are investing their own bond dollars with the promise of matching state dollars, it is important districts have some assurance that state matching dollars are available in a reasonable amount of time.

- **Analysis of the Source of the Problem:** Prior to the 2008 financial crisis, the three-leg stool of school building finance worked very well. The partnership of school districts, home builders, and the state built thousands of schools and housed tens of thousands of students. Subsequent to the 2008 financial crisis, state bond funds became less predictable funding sources. The instability of the state matching bond dollars has caused substantial problems for school districts. Regardless of how school construction is funded in the future, stability of funding is imperative.

  While stability of state funding is an important priority, another issue is looming: the state is about to run out of school facility bond dollars. Given the state's budget deficit of $15 billion dollars, it is unclear if the state can afford the debt services of another school facilities bond. In addition, there is still the possibility of a 2012, $10 billion water bond with debt services of $800 million annually. Given the ongoing state budget problems, it is unclear if voters would have the appetite for another bond.

- **Description of Analysis of the Proposed Solution/Strategy:** With the uncertainty of a 2012 bond, the sub-committee looked to options for school construction funding other than state bonds. The sub-committee assumes once the state budget stabilizes and California recovers from the economic downturn, school facilities funding may not be the same. The SSPI should take a leadership role and work with the Governor and Legislature to investige other funding options for the SFP.

Recommendation 5: (Short term) The State Allocation Board (SAB) would be chaired by the SSPI and the SAB would exercise direct control over the OPSC, the Division of State Architect (DSA), and the CDE's School Facilities Planning Division that would be housed in one independent agency. The board would appoint an Executive Officer to run the day to day operations of the agency. A Project Coordinator would be responsible for seeing each project through the process.

OR

The SAB would exercise direct control over a small staff focused on appeals, regulations, reports, agenda preparation, and legal services. The SSPI would coordinate, through an Executive Officer, the functions of the OPSC, the DSA, and the CDE. A Project Coordinator, also within the CDE, would be responsible for coordinating the functions of the OPSC, the DSA, and the CDE with respect to particular projects.

- **Rationale:** When the SFP was created in 1998, one of the goals was to streamline the process for school districts to access state matching dollars. Today, the program is complex with four different state departments writing state regulations. Some school districts even hire outside consultants to navigate the application process. After 12 years, it is time to re-evaluate the program and ensure that it is as streamlined of a program as possible.

- **Analysis of the Source of the Problem:** A school district must get approval from four different state agencies to build a school: the CDE, the Department of Toxic Substances Control (DTSC), the DSA, and the OPSC. Each of the four agencies has their own set of regulations, project tracking systems, applications, and four different approvals. The burden of having to go through four separate state agencies is time consuming and expensive for school districts.

  The four agencies' approval process lends itself to accountability and policy issues. While each of the agencies has a distinct role in the application process, some of their areas overlap. For example, the CDE has historically approved classrooms size. As the educational agency, the CDE is best suited to determine how many students should fit into a Career Technical Education (CTE) classroom compared to a traditional classroom. The problem is the OPSC also approves classroom size for the purpose of eligibility and student enrollment. Both approvals are necessary, but problems can arise when the two agencies differ in opinion. Because the eligibility/enrollment approval is the last of the two classroom approvals, the eligibility/enrollment point of view will often decide the classroom size.

- **Description of Analysis of the Proposed Solution/Strategy:** Combining three of the four agencies involved in school construction into a single state agency would save school districts time and money. A single agency would have one set of regulations, a single tracking system, one application, and one approval. With the SSPI as chair of SAB, we believe schools will be built and modernized as high-quality learning environments.

Moving all the agencies into one organization will result in a more focused policy and accountability. For example, when an application needs to get approval for classroom size, one person could consider both the educational purpose of the classroom and student eligibility/enrollment. Because this approval happens at the same time, a balance can be struck between the educational purpose and eligibility/enrollment accountability.

Project Coordinators would make the SFP process much simpler for small districts that may only use the SFP every 10-15 years. Small school districts often struggle through the SFP, so Project Coordinators would help them though the complex process. In addition, Project Coordinators could be a help to all school districts if they find a project is getting stuck somewhere in the process.

High Performance Schools Recommendations

High Efficiency Schools
Policy Sub-committee Memo

I. Sub-committee Topic: High Efficiency Schools

Chair

- Deborah Moore, Green Schools Initiative

Members

- Paul Chapman, Inverness Associates
- Gary Dillabough, The Westly Group
- Chip Fox, Sempra Energy Utilities
- John Ivey, Prefast Plantcrafted Buildings
- Greg Larkins, Sacramento Central Labor Council
- Alice Sung, Greenbank Associates
- Ashleigh Talberth, U.S. Green Building Council

Support Staff

- Lisa Constancio, California Department of Education, School Facilities Planning

Sub-committee Charge

The sub-committee was charged with reviewing and making recommendations on how to promote green and sustainable school construction and operational practices, including sustainable behaviors and best practices of students, teachers, staff, and parents/guardians. Work included recommendations to eliminate legislative and regulatory obstacles.

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II. Context

California has been a leader in energy efficiency, renewable energy, and environmental sustainability. However, there are a number of barriers and disincentives that inhibit schools from fully embracing high performance and high efficiency in facilities, operations and maintenance, and school occupant behaviors costing schools scarce funds and contributing to environmental degradation and poor health. Such barriers and disincentives include: cumbersome state requirements that inhibit the use of existing incentive grants and eligibility requirements that restrict access to other programs, lack of awareness of high performance and high efficiency criteria, programs, and benefits; few incentives for individual schools to conserve because funds saved do not generally benefit the particular school; missed opportunities for schools to cost effectively bid for and purchase products with environmental and health attributes; and no clear guidance to promote efficient and sustainable behaviors by students, staff, or teachers. There is an enormous need to concentrate on transforming existing schools into high performance learning environments.

The state of California can make a strong case for the triple bottom line benefits of high efficiency, sustainable, healthy, green schools of the future that:

- Save money through efficient use of resources in high performance school facilities and operations;

- Promote the health and productivity of students and staff through ensuring healthy learning environments; and

- Improve student academic achievement through hands-on, rigorous inquiry-based learning that promotes high-efficiency behaviors and practices.

By strengthening existing programs, filling some gaps, and removing some barriers, California can better leverage existing state and local funds and ensure the state's eligibility for federal funds possibly forthcoming. Because both physical facilities and occupant behavior change are fundamental to achieving the goals of high efficiency schools, our sub-committee broadened our scope to include recommendations to engage students and staff in educational programs to promote sustainable behaviors.

III. Key Recommendations and Options

Recommendation 1: Develop the California Green Schools Recognition Program.

The sub-committee recommends that the State Superintendent of Public Instruction (SSPI) establish a task force to create a voluntary, statewide California Green Schools Program to recognize exemplary environmentally sustainable schools using a comprehensive framework that integrates high efficiency school facilities, operations, and curricula coupled with student engagement.

- Results for recognized schools that meet the criteria are significant: save money, boost academic achievement, improve attendance and health, and reduce environmental and climate change impacts.
- The recognition program can leverage existing rating systems and best practices. It can reference and be modeled after existing programs such as the new Green Ribbon Schools Program announced April 26, 2011, by Education Secretary Arne Duncan; the California Distinguished School Program; Collaborative for High Performance Schools (CHPS); High Performance Incentive (HPI) Program; Leadership in Energy and Environmental Design (LEED); ENERGY STAR; and Green Business Programs; as well as other existing guidance, criteria, and recognition programs from California, national organizations, higher education organizations, and programs from at least seven other states.
- The program will streamline and integrate existing rating systems and best practices in facilities, operations, and curricula across the sustainability continuum to make it easier for individual schools and whole school districts to understand what they can do, how to get started, take actions, track and report results, and receive public recognition. The program can include a Web site that better coordinates and disseminates information from public, private, and non-profit sectors criteria and guidelines, training programs, resources, and funding mechanisms available to schools and districts statewide.

Timeline: 6-12 months for task force; opportunity to coordinate with federal Green Ribbon program in fall 2011. Full launch of state program in 1-2 years, following pilot test and identification of funds (private, public, partnerships) for program development and administration.

Context:

The California green schools movement has grown rapidly in recent years in an effort to help develop more environmentally sustainable schools for the students in our state. In many respects California has become a leader in the national sustainability efforts, especially in the area of building and renovating highly efficient schools and reducing energy consumption through the use of solar and other renewable sources of power. Model green schools operate within a framework that has three distinctive features: efficient use of resources in facilities construction and operation; curriculum and instruction focused on ecological literacy; and sustainable community practices that engage students in active learning and sustainable behaviors. Green schools play an important role in the effort to reduce pollution, decrease waste, conserve water, and reduce carbon emissions to help California achieve the ambitious goals established by Assembly Bill 32 (AB 32) in 2006 and other waste diversion and pollution prevention mandates. With 6.2 million students enrolled in more than 10,000 schools and over 1,000 separate districts, sound environmental policies and practices contribute significantly to the welfare of all Californians. Importantly, recent studies have shown that green schools can reduce costs in operation, construction, and education, a critical matter for our state (Kats, 2006).

A growing body of research demonstrates that green, environmentally sustainable schools improve student achievement. (D. Sobel, 2010). Natural day lighting of classrooms improves academic performance by as much as 20% in math and reading, as scientifically researched by Lisa Heschong. ("*Windows and Classrooms: A Study of Student Performance and the Indoor Environment,*'" Heschong Mahone Group, 2003.) Environmental education fosters the development of the skills students need to be successful citizens in the 21st century, including critical, creative, and problem-solving thinking; effective written, oral, and digital communication; and constructive citizenship that nurtures young leaders who can make a difference in their communities. Various studies have demonstrated that students taught in programs with an environmental focus "academically outperform their peers in traditional programs." (NAAEE, 2008, p.3; Sobel, 2010; MAEOE Maryland Association of Environmental and Outdoor Educators, Green Schools Program, 2010, p.2). Several studies sponsored by the California Department of Education (CDE) and the State Education and Environment Roundtable (SEER) corroborate this finding: "Students in the environment-based study schools scored higher than their traditionally educated peers on standardized tests scores in the content areas of reading, math, language, and spelling." (CDE and SEER, "*The Effects of Environment-based Education on Student Achievement*," 2005). Research shows that environmentally sustainable schools improve attendance, increase academic achievement, decrease behavior challenges and attrition, improve morale, and prepare students for the 21st century workforce, while helping restore the environment.

The California Green Schools Program will help enhance the number and quality of schools in the state that embrace high performance and sustainability across school facilities, operations, and curricula.

Analysis of the Source of the Problem:

A growing number of schools now want to be considered "high performance" or "green," and they are hungry both for practical steps on how to become healthy and sustainable and for public recognition of their efforts. Certification programs exist for newly constructed green school buildings – such as the U.S. Green Building Council's Leadership in Energy and Environmental Design program (LEED) for Schools and the Collaborative for High Performance Schools (CHPS) – but the majority of existing schools want guidance and recognition for efforts outside arenas of new construction and retrofits. Furthermore, meeting high performance and efficiency standards requires not only infrastructure that is sustainable, but also behaviors as well. Encouraging waste reduction, recycling, energy conservation, and transit, for example, requires educating and engaging students, staff, and parent community in behavior change.

At present there is no singular comprehensive program to guide and honor the sustainability efforts of schools that fully integrate high performance facilities, green operations, and environmental curriculum. Some efforts have been made to certify schools as green businesses, but these have focused only on the facilities, maintenance and operations aspects of efficient activities, and have ignored the unique opportunities schools offer to educate and mobilize students and teachers to take actions that will contribute to the sustainable and cost-effective operations of the schools. The CHPS green schools rating system includes a prerequisite and several voluntary credits that provide for buildings that teach, and calls for integration of educational components, such as school gardens, demonstration areas, signage, energy dashboards and more, that support environmental sustainability education embodied in the physical facility. However, it is teachers and students themselves who must perform the educational activities within these environments to gain the full educational benefits. In addition to the identified need to reduce the environmental impact of schools, there is also the need to address the achievement gap by engaging students with compelling, experiential curricula. Recent research shows that environmental education and hands-on, real world problem solving projects help to improve test scores, student behavior, and dropout rates. (Place-Based Education Evaluation Collaborative)

Several states have established clear frameworks, criteria, and guidelines to define, certify, and recognize schools that implement facilities, operations, and curricula that reduce a school's environmental footprint. These include Kentucky, Maryland, Michigan, Washington, and Wisconsin, among others (see references at end). California does not yet have such a program. Currently, the state recognizes green school facilities through its High Performance Schools Incentive Program only, with third-party building certifications for new construction, modernized buildings, or existing operations and maintenance recognition, provided through CHPS or LEED on a voluntary basis. Many environmental education programs are provided to schools through county level facilities such as Walden West, in Santa Clara County, or other institutions, such as Ardenwood Farm in Fremont. Other project-based learning happens on many campuses throughout California. There are few recognition programs that outline and

honor best practices for rigorous service learning and hands-on Science Technology Engineering and Math (STEM) programs in schools.

In the Bay Area, a partnership of city and county agencies and non-profits have formed the Green Star Schools Program, modeled on the California Distinguished School Program, which recognizes exemplary academic achievement in schools, and the Bay Area Green Business Program, which recognizes businesses for following certain environmental guidelines and checklists.

Nationally, the National Wildlife Federation (a non-profit) has launched Eco-Schools USA, part of the international Eco-Schools federation, that recognizes schools following its program. The newly-formed National Green Schools Network has developed "Green School Design Essentials" that lay out their version of Core Practices and Benchmarks for green schools. In the higher education sector, the Association for Advancement of Sustainability in Higher Education (AASHE) has developed its "Sustainability Tracking, Assessment, & Rating System," (STARS) for rating the practices of colleges and universities across facilities, operations, education and research, and administration. Lastly, the U.S. Department of Education (DOE) announced on April 26, 2011, the Green Ribbon Schools recognition program, based on the existing Blue Ribbon Schools program. The DOE intends to launch the program by fall 2011, relying on states to nominate schools by the end of the year, and to announce the first winners on Earth Day 2012.

California is home to many pioneering and leading high performance school facilities, environmental education organizations, and healthy and sustainable school non-profits. What is needed is a clear and coherent framework and set of guidelines and criteria to make it easier for schools to make effective and coordinated use of the available resources. Such a framework and program will also facilitate the engagement of more schools and districts in promoting best practices for healthy and high performance learning environments that successfully engage students in learning 21st century skills.

Recommended Solution:

The sub-committee recommends that the SSPI establish a task force to create a voluntary, statewide California Green Schools Program to recognize exemplary environmentally-sustainable schools using a comprehensive framework that integrates high performance school facilities, operations and maintenance, and curricula with student engagement that results in saving money, boosting academic achievement, improving attendance and health, and reducing environmental and climate change impacts.

The task force should be comprised of representatives of: state and local education and natural resources agencies, environmental and service learning organizations, schools and districts, education organizations, and other school facility and operation organizations with expertise in the areas of sustainability, high performance schools, green school operations, and environmental education. The task will be to leverage and better coordinate existing government, private, and non-profit programs for schools across facilities, operations, and curricula. This voluntary program would provide a uniform set of standards to help promote and recognize schools that are

high performance and environmentally sustainable. The program will build upon important work already achieved by educators and other organizations, such as the existing California Distinguished Schools Program, the Department of General Services (DGS), the Division of State Architect (DSA), CHPS, LEED, HPI, ENERGY STAR, Green Business Programs across the state, and the pilot Green Star Schools Program in bay area counties. It can borrow from other successful programs like the Maryland or Washington Green Schools Programs and recognition programs in the business community. The program can also be designed to incorporate a system of metrics that would allow schools to measure their performance over time and in comparison with a benchmark group.

The California Green Schools Program can be implemented in several ways, either administered by the CDE or a non-profit group to ensure on-going tracking and accountability. Project costs are estimated to be relatively modest for the recognition program based on experience in other states. A more complex program based on metrics and benchmarking would require more resources to administer but might well contribute to significant savings in school operations. The budget for the Green Schools Program could possibly come from the CDE (perhaps tied to existing programs related to Distinguished Schools and Blue Ribbon Schools) or be raised from the private sector and charitable foundations to ensure swift implementation.

The timeframe for this recommendation is 6-12 months to establish the task force and develop the program framework. The task force would further analyze whether such a voluntary program could be established as a public-private partnership without new legislation. Ideally, the short- term objective would be to take advantage of the new federal Green Ribbon Schools program in the fall 2011, perhaps as a pilot phase. A more complete program could be ready for the 2012- 2013 school year.

Resources and References:

Heschong Mahone Group, 2003. "*Windows and Classrooms: A Study of Student Performance and the Indoor Environment* – CEC PIER 2003."
http://www.h-m-g.com/projects/daylighting/summaries%20on%20daylighting.htm

Kats, Gregory, 2006. "*Greening America's Schools: Costs and Benefits*." A Capital E Report.
http://www.usgbc.org/Docs/Archive/General/Docs2908.pdf

Maryland Association for Environmental and Outdoor Education, "*The Maryland Green School Program Reference Guide*." https://maeoe.org/green-schools-and-green-centers/green-schools-program/green-centers-application

North American Association for Environmental Education (NAAEE), 2008. "*Developing a State Environmental Literacy Plan*."
Place-Based Education Evaluation Collaborative,
http://www.peecworks.org/PEEC/PEEC_Reports/

Sobel, David, 2010. "Place-Based Education, Test Scores, and More," presentation at Wellborn Evaluation Symposium, Kimball Union Academy.
http://www.peecworks.org/PEEC/PEEC_Reports/S01795CA8-017ACE03

State Education and Environment Roundtable (SEER), 2005. "*The Effects of Environment-based Education on Student Achievement*." http://www.seer.org/pages/research/CSAPII2005.pdf

SEER, 2006. "*Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning*." http://www.seer.org/pages/GAP.html

Links to Some Comprehensive Green Schools Recognition Programs:

- Eco-Schools USA: https://www.nwf.org/Eco-Schools-USA.aspx
- Kentucky Green and Healthy Schools Program: http://www.greenschools.ky.gov
- Maryland Green Schools Program, https://maeoe.org/green-schools-and-green-centers/green-schools-program/green-centers-application
- Michigan Green Schools: http://www.michigangreenschools.us/
- Washington Green Schools: http://www.wagreenschools.org
- Wisconsin Green and Healthy Schools Program: http://dnr.wi.gov/greenandhealthyschools/
- *Primarily facilities*: Collaborative for High Performance Schools, CHPS Verified program: http://www.chps.net/dev/Drupal/node
- *Primarily facilities*: Center for Green Schools: http://centerforgreenschools.org

Recommendation 2: Adopt a California Environmental Literacy Plan.

The sub-committee recommends that the SSPI establish an Environmental Literacy Plan (ELP) Task Force that will create an official ELP – building on the state's existing environmental curricula and programs - for adoption by the Superintendent.

- An official ELP will ensure that California is eligible for federal funds to support environmental education that may become available as part of the reauthorization of the Elementary and Secondary Education Act (ESEA).
- A California ELP will deepen our commitment to the 2007 California Children's Outdoor Bill of Rights, will amplify the existing K-12 Education and the Environment Initiative (EEI) curriculum, and will strengthen partnerships and coordination among EEI, the California Regional Environmental Education Community (CREEC) Network, and informal environmental education groups, thereby reaching more schools.
- An ELP, sanctioned by the CDE, can be easily integrated into any California Green Schools Recognition Program (Recommendation 1), and link lesson plans and project-based learning activities with high efficiency action and behaviors.

Timeline: 6-12 months. Opportunities for private foundation funding to facilitate a task force to develop an ELP.

Context:

A central feature of the national movement to create environmentally sustainable, green schools is the development of a K-12 curriculum in ecological literacy that engages students in critical thinking about the environment and their behaviors and choices. To promote this initiative, Congressman John Sarbanes (D-MD-3) and Senator John Reed (D-RI), have introduced legislation in the U.S. Congress called No Child Left Inside (H.R. 2054, S. 866) as part of the reauthorization of the Elementary and Secondary Education Act, which would include environmental education for the first time. The legislation, which is supported by a coalition of over 1,900 educational, environmental business, and health organizations, would provide new funding for environmental education, stimulate the development of rigorous curricular standards, and provide professional development and training for teachers. The legislation would also require that states adopt Environmental Literacy Plans in order to access these new funds.

The need for California to adopt such a plan is clear because we do not want to be left behind when the national legislation is passed and find ourselves ineligible for crucially needed funds. Based on California's experience with meeting eligibility requirements for the federal Race to the Top grants, being proactive is prudent. According to the North American Association for Environmental Education (NAAEE) in "*Developing a State Environmental Literacy Plan*," having a plan will contribute the improvement of our K-12 educational program since "environmental education prepares all citizens with 21st century essential skills that contribute to healthier, more environmentally sustainable, and economically prosperous communities." (NAAEE, 2008)

Various studies have demonstrated that students taught in programs with an environmental focus "academically outperform their peers in traditional programs." (NAAEE, 2008, p.3; Sobel, 2010; MAEOE Maryland Association of Environmental and Outdoor Educators, Green Schools Program, 2010, p.2). Several studies sponsored by the CDE and the SEER corroborate this finding: "Students in the environment-based study schools scored higher than their traditionally educated peers on standardized tests scores in the content areas of reading, math, language and spelling." (CDE and SEER, "*The Effects of Environment-based Education on Student Achievement*," 2005) The benefits of environmentally based education also include improved classroom management; reduced disciplinary problems; increased engagement, enthusiasm, and attendance; and increased pride in achievements. Finally, there are many opportunities to integrate environmental education into STEM programs.

Regarding the ELP, there are many benefits according to NAAEE because the plan will:

- Ensure that environmental education activities are aligned with student graduation requirements and help achieve state education goals.

- Ensure that environmental education is fully, efficiently, and appropriately integrated into formal education systems.

- Ensure that teacher professional development opportunities in environmental education are aligned with student achievement goals in environmental literacy.

- Ensure consistency, accuracy, and excellence in environmental content knowledge.

- Engage underserved communities through an inclusive process so that all stakeholders are beneficiaries of environmental education in schools.

- Ensure that non-formal environmental education providers, state natural resource agencies, community organizations, and other partners are involved appropriately and effectively in environmental education activities in schools.

- Serve as a necessary component of a comprehensive state environmental education program.

Based on the No Child Left Inside Act (NCLI), each plan must include these five elements:

1. Specific **content standards**, content areas, and courses or subjects where instruction will take place.

2. A description of how state **high school graduation requirements** will ensure that graduates are environmentally literate.

3. A description of programs for **professional development** of teachers to improve their environmental content knowledge, skill in teaching about environmental issues, and field-based pedagogical skills.

4. A description of how the state education agency will **measure the environmental literacy** of students.

5. A description of how the state education agency will **implement the plan**, including securing funding and other necessary support.

NAAEE also recommends the following:

- That the ELP include instructional opportunities like **outdoor education, service learning, and STEM** Programs.

- The **development of the ELP** should include the SSPI, the CDE, the state affiliate of NAAEE, and environmental education providers such as state and national parks, museums, nature centers, zoos, and aquariums, among other non-profits, county boards of education, and local agencies.

Analysis of the Source of the Problem:

Currently, California has a strong environmental curriculum but needs to prepare an ELP, which fortunately can be developed flexibly and build on important work that has been done already. With the leadership of the California Environmental Protection Agency (Cal EPA), the state has created the California Education and the Environment Initiative (EEI) Curriculum, a bold vision to increase environmental literacy in K-12 students and promote responsible stewardship of the Earth. The California EEI Curriculum was formally approved by the State Board of Education (SBE) and offers 85 units that are aligned with more than 100 science and history-social science academic content standards, and also supports K-12 English Language Arts standards. Originally mandated by legislation (AB 1548, Pavley, Chapter 665, Statutes of 2003 and AB 1721 Pavley, Chapter 581, Statutes of 2005) that was shaped with the leadership of SSPI Torlakson, the EEI curriculum was created by an educational and environmental partnership involving many agencies and key partners including the SBE, the Office of the Secretary for Education, the CDE, and the California Natural Resources Agency. The initiative received further support when Governor Arnold Schwarzenegger signed in 2007 the California Children's Outdoor Bill of Rights to "encourage parents, educators, and other concerned citizens to do all they can to help our state's children experience and enjoy the wonders of Mother Nature," a declaration that has been used as a model by other states in developing the case for environmental education.

California is close to having a fully developed ELP that could serve as a model for other states in the nation, but additional work will be required to address fully the five required elements of an ELP. California's plan could move from good to great by 1) incorporating the resources of the significant non-profit, non-formal environmental education network that already exists in California as allies and resources for the school-based educators, and by 2) adding more explicit outdoor educational learning and hands-on service learning to augment the EEI curriculum. Improving coordination between EEI and the CREEC Network would also help reach more schools. Recent public reports indicate that only four states—Oregon, Nebraska, Maryland, and Maine—have approved ELPs that meet the standards articulated in No Child Left Inside. It is vital that a systematic effort be made to secure for California an approved ELP so that our state can be recognized nationally for the work that is being done to foster environmental literacy. As it stands now, the lack of coordination among EEI, the CREEC Network, and the multitude of non-governmental environmental education service providers means that schools and students cannot make full use of these resources.

Recommended Solution:

The sub-committee recommends that the SSPI establish an ELP task force that will create an official ELP for adoption by the State Board of Education (SBE) to enhance sustainability and efficiency in the California schools' curriculum, facilities, and operations, and to ensure that California is eligible for federal funds to support environmental education that may become available.

The task force should be composed of approximately a dozen organizational leaders in the field including: CDE, the Environmental Education Advisory Committee (EEAC), Cal EPA, California Association of Environmental and Outdoor Education (CAEOE), California Natural Resources Agency (NRA), California Environmental Education Foundation (CEEF), California

Environmental Education Interagency Network (CEEIN), California Outdoor School Association (COSA), California Regional Environmental Education Community (CREEC) Network, as well as representatives from the non-profit world of museums, foundations, and environmental groups. The task force should determine how best to build on California's significant engagement in environmental education and develop a strategy and timetable to produce a formal ELP that can be submitted for approval and certification by the SSPI no later than June 30, 2012. Once approval has been granted by the SSPI, the task force should outline how to promote the ELP in the California educational sector, the national environmental movement, and to the broader population.

There are private funding opportunities available to support the development of an ELP.

Resources and References:

Maryland Association for Environmental and Outdoor Education, "*The Maryland Green School Program Reference Guide*," https://maeoe.org/green-schools-and-green-centers/green-schools-program/green-centers-application

North American Association for Environmental Education (NAAEE), 2008. "*Developing a State Environmental Literacy Plan*." https://cdn.naaee.org/sites/default/files/naaee_dselp.pdf

Place-Based Education Evaluation Collaborative, http://www.peecworks.org/PEEC/PEEC_Reports/

Sobel, David, 2010. "Place-Based Education, Test Scores, and More," presentation at Wellborn Evaluation Symposium, Kimball Union Academy. http://www.peecworks.org/PEEC/PEEC_Reports/S01795CA8-017ACE03

State Education and Environment Roundtable (SEER), 2005. "*The Effects of Environment-based Education on Student Achievement*." http://www.seer.org/pages/csap.pdf

SEER, 2006. "*Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning*." http://www.seer.org/pages/GAP.html

Recommendation 3: Leverage school procurement to promote high efficiency operations through the purchase of healthy and sustainable products and consumables.

The sub-committee recommends that the current regulations governing bidding requirements and procurement processes be reviewed and revised to encourage and ease environmentally preferable purchasing (EPP) that will promote high efficiency day-to-day operations in California schools, leveraging the billions of dollars spent annually by California schools towards healthy sustainable products. School procurement covers healthy and sustainable building materials, schoolyard and grounds supplies, janitorial and maintenance products, food and food service items, school, office and art supplies, equipment/technology, and other products or consumables. Barriers for schools include bureaucracy to access state purchasing contracts, lack of capacity and training to include EPP specifications in bids, perceptions of higher costs,

and mandates or practices that often favor lowest bids over life-cycle analysis. Recommendations include:

- The CDE and the Department of General Services (DGS) should collaborate to better promote and disseminate to schools a green purchasing toolkit with user friendly tools and opportunities for districts to take advantage of huge cost savings on environmentally preferable purchases (EPP) made through existing state contracts, piggybacking on other contracts, or purchasing cooperatives, building on the DGS Buying Green Guide and others.
- School districts should include high performance, life cycle, total cost of ownership, environmental, and health attributes in purchasing orders and bid specifications.
- Many such revisions in purchasing practices and policies, particularly for day-to-day products and consumables, can be achieved administratively. Further research is needed to determine whether some revisions, especially related to new construction bidding requirements, would require administrative changes or legislation to revise the California Public Contract Code. There are numerous precedents encouraging – and sometimes mandating – EPP in California, including the University of California's Policy on Sustainable Practices, municipal ordinances, school district purchasing policies, California *Public Contract Code*, sections 12400-12404, and California *Education Code*, sections 32060-32066.

Timeline: 6-12 months for actions that can be done administratively; 1-2 years if legislation is necessary.

Context:

School purchasing can support high-efficiency, high performance, healthy school facilities, operations, and maintenance. California schools spend billions of dollars annually to purchase building materials, office and school supplies, janitorial and maintenance supplies, food and food service items, and more. All of these products – anything from toilet paper to paints, from notebooks to cleaning products, from lighting fixtures to carpets, from food to computers – have an impact on the environment and health from its manufacture, use, and disposal. The cleaning products generally used in California schools, for example, have been shown to contain hazardous chemicals that cause asthma, cancer, and reproductive health problems (Expert Work Group study and the California Department of Public Health). Paints and carpets off gas Volatile Organic Compounds (VOCs) that contribute to poor indoor air quality, smog, and respiratory illnesses. Computers, equipment, and lighting bought by schools – if not Energy Star rated – can increase school energy bills.

High performance and high-efficiency schools are built and operated using products and materials that have fewer environmental and health effects because they are made from less-toxic, renewable materials, recycled materials, and/or use less energy and have a longer lifespan. Purchasing these types of products can help reduce a school's environmental footprint, improve indoor air quality, conserve energy, water or other resources, lessen the wastestream, reduce exposures of students and staff to hazardous materials, and save money and labor.

There are a variety of mechanisms to encourage or require schools to purchase products with fewer health and environmental impacts – so-called "environmentally preferable products" – while also meeting financial, maintenance, and facility goals. These include mechanisms in the bidding process, the procurement and purchasing process, and the process of allocating state grants and funds.

Analysis of the Source of the Problem:

While California's *Public Contract Code* is actually quite good for promoting "environmentally preferable purchasing" (California *Public Contract Code*, sections 12400-12404), it is only mandatory for state agencies to purchase through the state contracts, whereas it is voluntary for schools. Few public schools take advantage of the price discounts that state procurement contracts offer – though state contracts offer both "green" and conventional products. In addition, existing California *Education Code*, sections 32060-32066 establishes a precedent that prohibits schools from purchasing toxic art supplies that pose a danger to children's health as determined by the California Department of Public Health (CDPH) and the California Health and Safety Code, and requires the purchase of less-toxic art supplies.

The California *Public Contract Code*, sections 20110-20118.4 requires that school districts accept the lowest bid, which can have unintended consequences of accepting cheaper upfront costs that can result in higher operational costs or a lower product lifespan or ignore other important health or environmental attributes. Life Cycle Analysis and Total Cost of Ownership (TCO) analysis can help to evaluate the overall best value of a product to help weigh both capital and operational costs, performance, lifespan, and health and environmental attributes, showing that some products that have a higher capital cost can result in lower operational costs over the life of the product. Indeed, many existing policies, including the University of California's Policy on Sustainable Practices, several municipal ordinances, and many school district purchasing policies require life cycle or TCO analysis and other measures.

The new Cal Green Code came into force in 2011, which requires the purchase of many green building materials.

Recommended Solution:

The sub-committee recommends that the current regulations governing bidding requirements and procurement processes be reviewed and revised to encourage and ease "environmentally preferable purchasing" (EPP) that will promote high-efficiency day-to-day operations in California schools, leveraging the billions of dollars spent annually by California schools towards healthy sustainable products. School procurement covers healthy and sustainable building materials, schoolyard and grounds supplies, janitorial and maintenance products, food and food service items, school, office and art supplies, equipment/technology, and other products or consumables. Barriers for schools include: bureaucracy to access state purchasing contracts, lack of capacity and training to include EPP specifications in bids, perceptions of higher costs, and mandates or practices that often favor lowest bids over life-cycle analysis. Recommendations include:

- The CDE and the DGS should collaborate to better promote and disseminate to schools a green purchasing toolkit with user-friendly tools and opportunities for districts to take advantage of huge cost-savings and volume discounts on EPP made through existing state contracts, piggybacking on other contracts (Ed Buy, Western States Contracting Alliance, U.S. Communities, or others), or purchasing cooperatives, building on the DGS "*Buying Green Guide*" and others. Local districts could also consider pooling their purchases through county offices of education. Other resources include: "*Local Government Green Purchasing Guidelines*," 2010 published by the California Sustainability Alliance; advisory organizations such as the Responsible Purchasing Network; and the Green Schools Buying Guide, developed by Green Schools Initiative.
- School districts should include high performance, life cycle, Total Cost of Ownership, environmental, and health attributes in purchasing orders and bid specifications.
- Many such revisions in purchasing practices and policies can be achieved administratively. Further research is needed to determine whether some revisions, especially related to new construction bidding requirements, would require administrative changes or legislation to revise the California *Public Contract Code*. The DGS can be charged with addressing or revising regulations and administrative policies related to the bidding process under *Public Contract Code* (sections 20110-20118.4).
- There are numerous precedents encouraging – and sometimes mandating – EPP in California, including University of California's Policy on Sustainable Practices, municipal ordinances, school district purchasing policies, California *Public Contract Code* (sections 12400-12404), and California *Education Code* (sections 32060-32066). In addition, California *Public Contract Code* (sections 22150-22154) require local public entities to purchase recycled products whenever they are available at the same or less cost, and they are also allowed to give preferences in their bidding to suppliers of recycled products. This could apply to schools as public entities. Or building on the *Education Code* (sections 32060-32066) requiring the purchase of less-toxic art supplies, a similar approach could be used to require or encourage purchasing for operational supplies (cleaning products and janitorial supplies, paper and office supplies, etc.). Or the CDE and the Office of Public School Construction (OPSC) could consider creating eligibility requirements for schools to receive state funding for operations and maintenance to a requirement that schools purchase environmentally preferable products for these maintenance and operations activities.

Timeline: 6-12 months for actions that can be done administratively; 1-2 years if legislation is necessary.

References and Resources:

California Department of General Services. *Environmentally Preferable Purchasing and "Buying Green" Guide.*
http://www.dgs.ca.gov/Default.aspx?alias=www.dgs.ca.gov/buyinggreen

California Sustainability Alliance, 2010. "*Local Government Green Procurement Guide*."

Green Schools Initiative, "*Green Schools Buying Guide*."

Responsible Purchasing Network, http://www.responsiblepurchasing.org/

University of California, UC Policy on Sustainable Practices,
http://www.universityofcalifornia.edu/sustainability/policy.html

Recommendation 4: Develop a low energy retrofit program maximizing passive systems like day lighting and non-mechanical heating and cooling to transform any existing school facility regardless of the OPSC eligibility. (Links to Group 8 on Grid Neutral and Group 6 on Renewable Energy).

The sub-committee recommends that the SSPI direct the CDE School Facilities Planning Division staff – together with key stakeholders, the Coalition for Adequate School Housing High Performance Working Group, the DSA, the California Energy Commission (CEC), and other CDE partners – to define criteria and guidelines for a low energy retrofit program that utilizes an integrated whole building approach and sustainable design practices to aggressively seek deep energy savings in any existing school by maximizing natural, passive systems (natural day lighting, ventilation, non-mechanical heating and cooling, changes to building envelopes). Thus, our existing school buildings should be retrofitted to best prepare them to ultimately achieve Grid Neutral and Zero Net Energy and energy efficiency goals established in the CPUC's statewide strategic plan. Current barriers are that an estimated 60-70% of existing school buildings are excluded by current OPSC eligibility requirements; access to existing modernization funds is limited; funds often do not cover these kinds of low energy retrofits; and modernization funds are woefully inadequate to meet all modernization needs, let alone cover upgrades required using a low energy and integrated whole building approach. Specific action steps include:

- Work to restore deferred maintenance funds and target funds for energy efficiency maintenance, retrofits, and repairs.
- Actively participate in the CEC's rulemaking for implementation of Assembly Bill (AB) 758 (Chapter 470, Statutes of 2009), "Comprehensive Energy Efficiency Program for Existing Buildings", which will include school buildings, and covers energy assessments, benchmarking, financing, and green workforce training. Influence program to include low energy retrofits and to benefit school facilities.
- Develop high efficiency school facility maintenance and operating guidelines to better monitor, manage, and reduce energy, water, and waste, building on existing guidelines such as CHPS Operations Report Card (ORC), LEED Existing Buildings Operations and Maintenance (LEED EBOM), and the CASH Planning for Energy Efficiency best practices checklists, among others.

- Promote and expand existing training and apprentice programs with the various California Building Trades, Career Technical Education, and the green academies to prepare students for clean energy jobs and to promote High Performance/Zero Net Energy schools.

Timeline: Mix of short and long-term.

Overall Context and Problem Analysis:

Most of the initiatives to promote High Performance Schools have focused on new construction and modernization projects. However, the biggest barrier to promoting "schools of the future" is the difficulty in transforming our existing school facilities to meet high performance criteria and standards. The vast majority of our schools are already built. And this aging building stock needs many retrofits to drive down energy use and meet sustainable design criteria. While Zero Net Energy and Grid Neutral schools are laudable goals, the first and most cost-effective step in transforming existing buildings is to aggressively seek deep savings in energy use by maximizing natural, passive systems, such as natural day lighting, ventilation, and non-mechanical heating and cooling through building envelope changes like insulation and superior windows, as well as other energy efficiency measures. Once the energy use is driven down – using an integrated whole building approach and sustainable design practices – the renewable energy offsets needed to achieve Zero Net Energy will be much less costly and more readily achievable.

There have been several barriers to promoting the transformation of our existing schools into high performance schools. First, there have been constraints and difficulties with schools accessing the High Performance Incentive (HPI) Grants established under the Proposition 1D bonds (discussed further under Recommendation 5). In addition, the fact that access to the HPI grant funding is tied only to those projects with "OPSC eligibility" in select OPSC programs (mainly new construction and modernization) excludes a majority of our existing school building stock. We estimate this to be at least 60-70% of our existing school facilities that do not have OPSC eligibility. Furthermore, widespread adoption is hampered by misperceptions that the costs of high performance schools are too high, coupled with the reality that modernization funding of existing school buildings is woefully inadequate. The reality is that only a small fraction of school facilities meet the high performance criteria that have emerged in recent years, since the vast majority of schools were already built when CHPS, LEED, and HPI came about during the last decade.

Another barrier to the implementation of energy retrofits to reduce energy use in existing buildings is the lack of trained staff. To develop the workforce for a future green economy will require education, training, and apprentice programs in the "building trades." President Obama has tasked his Recovery through Retrofit Working Group with developing strategies to promote the green technology industries and the training programs needed to create a qualified workforce for careers in these emerging fields.

An example of this is the training program established by the International Brotherhood of Electrical Workers-National Electrical Contractors Association (IBEW-NECA). They have developed an industry partnership training program called the California Advanced Lighting Controls Training Program (CALCTP). CALCTP convenes industry stakeholders and partners

with existing state training and education institutions to implement training programs that directly tie training to middle class green technology careers.

Investor Owned Utilities (IOUs), (like Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric) also administer the smaller Connections initiatives, which include five programs targeting K-12 and college student populations. These are energy awareness initiatives carried out in collaboration with schools and colleges, but they have begun to integrate career education. For the K-12 programs, the IOU's are developing deeper ties with the career preparation programs in California high schools. To assist in building career awareness and career exploration that serves K-12 students and support career preparation programs in career academies, IOU's collaborate with the California Partnership Academies (green academies), which are the state's primary career technical initiative aimed at lowering drop-out rates and guiding students into post-secondary training and career tracks in these specific occupations.

In the last few years, the California State Building & Construction Trades Council's affiliated organizations have spent a significant amount of resources training and certifying its workforce for careers in the emerging energy efficient technologies. Its training programs range from the beginning stages of energy efficiency – energy audits, to developing recommendations and energy efficient systems, installing these energy efficient upgrades and systems, and maintaining the systems once installed. The Industry also partners with the higher education establishment to provide the training opportunities that lead to careers in these emerging energy efficiency fields. These programs offer the building blocks to significantly expand the number of trained workers to implement energy retrofit programs. In addition, there are opportunities to partner with Career Technical Education and the "Green Academies" to develop training and apprentice programs for students to implement energy efficiency and retrofit programs at their own schools (depending on safety and liability issues). Several bills in the last few years have been sponsored to address such "green collar jobs" issues: Senate Bill 1672 (SB 1672) failed (Renewable Energy, Climate Change, Career Technical Education, and Clean Technology Job Creation Bond Act of 2010), AB 3018 passed (Green Collar Jobs Act of 2008).

Recommended Solution:

The sub-committee recommends the SSPI direct the CDE School Facilities Planning Division staff – together with key stakeholders, the CASH High Performance Working Group, the DSA, the CEC, and other CDE partners – to define criteria and guidelines for a low energy retrofit program that utilizes an integrated whole building approach and sustainable design practices to aggressively seek deep energy savings in any existing school – regardless of OPSC eligibility – by maximizing natural, passive systems (natural day lighting, ventilation, non-mechanical heating and cooling, building envelope changes). Thus, our existing school buildings should be retrofitted to best prepare them to ultimately achieve grid neutral and zero net energy and energy efficiency goals established in the CPUC's statewide strategic plan. This will build on the DSA's existing Sustainable Schools Resources, but applied to transforming existing facilities.

In focusing on our vast majority of existing school facility stocks with no OPSC eligibility, the state should analyze our existing school facilities, to identify where it can drive down energy and water utilization through physical transformation of our buildings, installation of management

systems, and coordination of district staff and site – occupant (administrators, teachers, students, and even parent community) behaviors linked to educational curricula is critical to maximize cost savings and reap all the cost and carbon footprint savings.

Criteria for the scope of work to be done per building(s) or per school site could be based on meeting criteria from the already-adopted High Performance Schools Scorecard in the areas of energy efficiency, water efficiency, climate, and indoor environmental quality. This new program should include developing state maintenance and operating guidelines, which could be based on existing systems such as CHPS Operations Scorecard, LEED EBOM, and others, to better monitor, manage, and reduce energy and water consumption, as well as move districts towards zero waste and best practices to improve indoor air quality. This program could easily be integrated into the California Green Schools Recognition Program (Recommendation 1), creating a paradigm-shift towards saving millions of dollars of operating expenses annually.

Furthering the objective of public education, the building and construction trades crafts can serve as a partner with the CDE in preparing students for further education and energy-related career opportunities. The building and construction trades crafts, who will perform many of the construction activities to transform our educational facilities into low energy use/high efficiency schools, can assist in providing the training programs and certification requirements associated with career technical education and green techology academies, that will ensure quality craftsmanship while providing the training for those apprentices seeking career opportunities in the craft. Proper training to complete energy or efficiency projects on-time and on-budget while ensuring safety requirements that will guarantee a safe environment for both the installer and the end-user would be an additional benefit of any Trades Council involvement with this important work.

Given the economic state of our school budgets, this shift of emphasis from mere energy efficient to one of low energy by design first, followed then by integrating high efficiency systems, and finally, energy conserving operations and use, in order to move quickly towards Grid Neutral and Zero Net Energy/Zero Carbon, is imperative.

References and Resources:

California Division of State Architect, Sustainable Schools Resource - http://www.dgs.ca.gov/dsa/Programs/progSustainability.aspx

Coalition for Adequate School Housing (CASH), 2009. "*Planning for Energy Efficiency*." http://www.cashnet.org/EnergyBrochure09.pdf

Grid Neutral Schools – http://www.dgs.ca.gov/dsa/Resources/pubs.aspx

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program, 2000. "*Passive Solar Design: The Foundation for Low-Energy Federal Buildings*."

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program, 2001. "*Low-Energy Building Design Guidelines: Energy-efficient design for new Federal facilities*."

Recommendation 5: Create innovative funding mechanisms to support high efficiency sustainable schools for design and construction, retrofits, and district level maintenance and operations, for both new and existing schools, and better publicize the business case along with the funding mechanisms.

5A. The sub-committee recommends that the CDE enhance existing funding mechanisms and explore a variety of new innovative funding mechanisms, including, but not limited to:

i. Collaborate with utilities and other groups to encourage schools to fully use existing incentive and rebate programs being offered, such as Savings by Design, California Solar Initiative (CSI), and California Energy Commission (CEC) loans, among others.

ii. Streamline, strengthen, and expand eligibility for the existing High Performance Incentive (HPI) Grant Program to ensure existing authorized funds get used by more schools.

iii. Increase the per-pupil grant basis for the State Allocation Board (SAB) modernization funding.

iv. Ensure all SAB funded projects meet minimum level of existing high performance schools criteria and allow use of state funds to be expended for any high performance school criteria.

v. Require the use of high performance design criteria in future state and local school bond initiatives. This could include all future state bonds incorporate language on high performance criteria; a significant set-aside in future state bonds to replenish the HPI Grants; a set-aside to fund low energy retrofits of existing facilities (as described in Recommendation 4, and modeled after Washington state's Energy Operating Cost Savings program); and encourage districts to include high performance criteria in their local bond measures. The CDE could create sample language to include in local school bond initiatives.

vi. Develop Revolving Green Loan Fund programs at state and/or local levels, building on models like UC Santa Barbara's "The Green Initiative Fund" (TGIF), Harvard's "Green Campus Loan Fund", and UC Berkeley's TGIF and Chancellor's "Green Campus Fund".

vii. Explore innovative financial arrangements, similar to existing measures like the Integrated Project Delivery method or the lease-leaseback alternative delivery method for school facilities built and leased by private entities, or other turnkey construction, retrofit, and maintenance contracts and arrangements.

Timeline: Mix of short-term (i – iv) and long-term (v-vii).

5B. The sub-committee recommends that the CDE better publicize the business case for the triple bottom line benefits of high efficiency sustainable school facilities and operations, based on existing research and evidence, as well as assess the potential financial, resource, pollution, health, attendance, and carbon savings from improvements in California's existing school facilities, and improve tracking the results of school sustainability efforts. This initiative will:

- Raise awareness among the education sector of the business case.
- Enhance existing and newly developed funding mechanisms through a better promotional campaign designed to educate schools via a one stop shopping information clearinghouse, where funding information is readily accessible and that could be modeled on the existing Energy Upgrade California Web site developed by diverse public and private partners, the Database for State Incentives for Renewable Energy (DSIRE), or the forthcoming COOL California.org Local Government Toolkit Funding Wizard.

Timeline: 6-12 months to develop information clearinghouse Web site and funding wizard.

Context and Problem Analysis:

California has many funding programs for school facilities, and in recent years some funds have been allocated towards incentivizing high performance and energy efficient schools. Ultimately, however, the goal is to transform all schools to become high performance and efficient ones. This will require internalizing high performance criteria into all funding programs, leveraging existing funds, fully utilizing all existing rebate and incentive programs, and developing new and innovative funding mechanisms.

For example, California voters approved Proposition 1D in 2006, providing $100 million in incentive grants to promote the use of high performance attributes in new construction and modernization projects for K-12 schools, which include site, water, energy, materials, and indoor environmental quality as attributes. Yet, only approximately $25 million of the $100 million available has been used to date. This leaves $75 million available to districts if they go through the process of filing for the monies. Most districts that want to apply for the grant incur some up-front soft costs for design and energy modeling, day lighting analysis and acoustics consulting, in addition to perceived and/or real commitment to higher hard construction costs as well as commissioning and acoustical testing. And there are no guarantees that a design team will achieve targeted credits, nor that the funding will still be available.

As of April 2011, changes were made to the regulations that include addressing some of these up front costs and discrepancy between new construction and modernization levels of per-pupil grant funding. Schools can now receive more money, a base of $150,000 for new construction and $250,000 for modernization, as well as additional incentives. The CHPS and the DSA have signed a Memorandum of Understanding (MOU) that should streamline the process of having a building CHPS Verified. Under the MOU, the DSA will become the third party reviewer during the design/HPI review and the approval will result in both the HPI and CHPS Verified approval. This coordination will have only one scorecard, one online document package and one project review process. When completed the scorecard will automatically calculate a project's HPI points and confirm compliance with the mandatory measures of the new California Green Building Code, while reducing overall fees to reflect this streamlining. We recommend supporting this type of streamlining of the HPI Grant processes. In future refinements of the HPI, the DSA may consider other pathways to compliance, such as LEED. There are a variety of pathways in different states, like CO-CHPS Verified Leader or LEED Gold in Colorado or in

Massachusetts either MA-CHPS Verified Leader or LEED for Schools Silver+MA Stretch Energy Code, and various others in between.

California utilities also offer incentive programs to help school districts offset the incremental costs of installing high performance energy efficient equipment. These programs provide incentives to offset equipment costs and help districts quantify the long-term energy savings they will see on a monthly and yearly basis. By combining the initial incentives along with the expected long-term energy savings, school districts can see paybacks of less than three years. One program in particular, the Savings by Design (http://www.savingsbydesign.com) program has been instrumental in helping many districts receive incentives, design assistance and training for both new construction and major modernization projects (replacing two or more building systems). The program utilizes an integrated whole building approach, which helps achieve integrated design while optimizing energy solutions. However, it appears school districts' knowledge of the program is limited and they may not know who to contact in getting timely information which would allow them to fully participate in the program.

In the future, new bonds and funding mechanisms should incorporate High Performance criteria from the outset so as to internalize these goals into all funding programs, or at least have significant set-asides for such programs. There are many examples to build on, including California's own HPI grants, as well as Washington State's "Energy Operating Cost Savings" program that sets aside a portion of bonds for energy retrofits and building commissioning. In addition to bonds, there are revolving loan funds and sustainability grant funds. Examples include: UC Santa Barbara's The Green Initiative Fund (TGIF), Harvard's Green Campus Loan Fund, and UC Berkeley's TGIF and Chancellor's Green Campus Fund. The beauty of revolving loan funds is that the loans are repaid by savings achieved from the programs funded, such as energy savings due to retrofits. While initial capital and funds must be raised, the funds proceed indefinitely via the loan repayments. Some of the loan funds raise initial capital through fees, other through state or private sources.

Finally, there are also opportunities to explore ways of enhancing or expanding a variety of alternative delivery methods for construction, retrofits, and maintenance. There can be efficiency results from outsourcing certain tasks to the private sector, as well as shifting the burden for raising capital to private entities. The CDE and the DSA could further explore concepts similar to the existing lease-leaseback alternative delivery and integrated project delivery method. Furthermore, there are other turnkey approaches to construction, retrofits, and facility maintenance, including Project Frog, other green prefabricated modular buildings, and various energy services companies (ESCOs) and Power Purchase Agreements (PPAs).

Regardless of which funding mechanisms to pursue, there is a great need to better coordinate, promote, and publicize all the various funding mechanisms to schools. There is a myriad of existing research and evidence that proves the business case for high efficiency schools (see, for example, U.S. Green Building Council's Center for Green Schools' Web site, the CHPS Web site, National Research Council reports, and others). To better persuade decision-makers, the CDE should compile this information and make it available to school constituencies. In addition, there is a great need for a one stop shopping information clearinghouse to make it very easy for schools to learn about and access funding sources and sustainability resources to support high performance initiatives in their districts and at their schools, whether it be for school facilities, construction, modernization, retrofits, operations, or maintenance. There are numerous Web sites

that are coming online that the CDE could easily build on and expand beyond information about energy efficiency or renewables to encompass the full range of sustainability topics and resources for schools. Models include: Energy Upgrade California Web site, Database for State Incentives for Renewable Energy (DSIRE), or the forthcoming COOL California.org Local Government Toolkit Funding Wizard.

Resources and References:

Collaborative for High Performance Schools – various technical resources, case studies - http://www.chps.net/dev/Drupal/node/27

Harvard University, Green Campus Loan Fund. http://green.harvard.edu/loan-fund

National Research Council, 2006. "Green Schools: Attributes for Health and Learning." http://www.nap.edu/catalog.php?record_id=11756

State of Washington, Office of State Superintendent of Public Instruction, 2010 Energy Operational Costs Savings Improvement Grants, http://www.k12.wa.us/SchFacilities/Programs/EnergyImprovement/default.aspx

UC Berkeley, Chancellor's Green Campus Fund, http://sustainability.berkeley.edu/cacs/pages/greenfund/overview.shtml

UC Berkeley, TGIF: The Green Initiative Fund, http://tgif.berkeley.edu/

UC Santa Barbara, TGIF: The Green Initiative Fund. http://sustainability.ucsb.edu/tgif/index.php

US Green Building Council, Center for Green Schools – various publications and references with existing research on the business case: http://www.centerforgreenschools.org/guides.aspx

Renewable Energy
Policy Sub-committee Memo

I. Sub-committee Topic: Renewable Energy

Co-chairs

- Anna Ferrera, School Energy Coalition
- Bob Linscheid, California State University, Board of Trustees

Members

- Panama Bartholomy, California Energy Commission
- Gary Eberhart, Seward L. Schreder Construction, Inc.
- Benjamin Foster, Optony
- Tom Kelly, KyotoUSA
- Bill Meehleis, Meehleis Modular Buildings
- Mikal Nicholls, San Diego County Office of Education (Energy JPA)
- William Owens, Resource Accords

Support Staff

- John Gordon, California Department of Education, School Facilities Planning

Sub-committee Charge

At the request of the State Superintendent of Public Instruction (SSPI), the Renewable Energy sub-committee examined impediments to schools implementing energy conservation and alternative energy programs and developed action items for the California Department of Education (CDE) implementation. The sub-committee is pleased to provide our best thoughts for incentivizing and incorporating renewable energy resources for California's schools and the construction of appropriate and accountable renewable projects for K-12 classrooms and other school facilities.

II. Context

Making use of renewable power for schools is essential to achieving the state Legislature's overarching goal of increasing our overall renewable energy use while giving our children the sense that we are doing something significant to address the impacts of climate change. Doing so will also help to reduce the amount of energy wasted and the rising cost of energy – a cost that school districts can no longer afford to ignore.

On March 29, 2011, the California Assembly passed Senate Bill (SB) X1-2, approving a 33% renewable portfolio standard (RPS) for the state. The bill requires both public and private load-serving entities to obtain 33% of their power from renewable energy by 2020. Governor Brown signed the bill on April 12, 2011.

School facilities throughout the state provide a logical host site for "distributed" or independent generation. There is an inherent benefit to installing photovoltaic (PV) panels on school rooftops and/or integrated into parking lot or shade structures.

The sub-committee estimates that if every school district in California installed 1 megawatt (MW) of solar capacity, the resulting clean renewable energy produced would conservatively represent 2% of the state's 33% RPS goal.

On the local level, many communities have adopted very aggressive goals for renewable energy usage that enables the state to reach its overall goals and supports school district clean power initiatives. These include major cities such as San Francisco and San Jose who have targets of 100% of the entire city's electricity usage from renewable sources by 2020 and 2022 respectively.

When coupled with better energy efficiency and energy conservation behaviors, renewable projects will generate savings for school districts and county offices of education, create green jobs, relieve pressure on the energy grid, lower carbon emissions, produce fewer toxic air contaminants, and reduce water consumption. In addition to these important energy, environmental, and economic benefits, expanding opportunities for schools to participate in the production and use of renewable energy can generate significant educational benefits.

These savings can be put back into the classroom to support student learning. An energy efficient school powered by renewable energy (whether or not the renewable energy is generated on site) becomes a living laboratory for sound resource stewardship, environmental protection, and fiscal responsibility. Such a school is a teaching tool for all students and a source of pride for the community.

Finally, schools actively engaged with renewable energy and other sustainable resource management practices are better positioned to help achieve career technical education and workplace readiness goals by providing training and support to the next generation of the greentech workforce.

Greater reliance on self-generation through renewables also means that schools will have to purchase less of their electricity from utilities. These "avoided costs" are often substantial over the life of the self-generation project and may be structured by the schools to produce immediate General Fund savings. In the last two years, a number of school districts have procured "self-funding" solar projects (meaning that the total avoided costs plus rebates more than offset the cost of procuring and operating the solar project). The resulting savings represent dollars that may be used for other budgetary needs.

A big variable here, however, is how the renewable energy projects are funded/financed; Power Purchase Agreements (PPAs) generally offer only very modest General Fund savings, while projects funded through bond measures offer the greatest savings. Such bond measures may be difficult to pass over the next several years. Low-cost financing, such as what California could provide to school districts, could provide significantly greater General Fund savings than PPAs.

Therefore, the state can play a very significant role in accelerating renewable energy savings if it could provide low-cost financing support.

Regulatory Barriers

- Renewable Energy Incentive Cap is currently limited to 1 MW per customer meter. Can this be increased? California State University recommends an increase to 5 MW.

- Standby Charges and Stranded/Costs/Exit Fees should be reviewed and modified taking into account the performance of these systems, their reliability, and any duplicative costs that may be embedded in these fees.

- California Air Resources Board (CARB) rules for co-generation classify end use customers as "utility class" requiring them to pay costly emissions fees.

- Review of the Department of General Services (DGS) authority and role in forecasting, billing, and purchasing services.

- Lack of availability of Direct Access program hinders options for schools to find cost-effective renewable energy options from remote project development. Further expansion of this program in 2012 is recommended.

- Net metering is limited to generating meter at the district site instead of being applied across all district electrical accounts.

Our recommendations are provided in the next section. Additional information is provided in the following appendices:

- Appendix A – State Agencies with Energy Responsibility
- Appendix B – Legislative Actions
- Appendix C – Bibliography

III. Key Recommendations and Options

Each action item includes the following recommended timeframes:

- Short term (next six months)
- Intermediate (within one year)
- Long term (within three years)

Recommendation 1: Protecting Revenues – Support laws/initiatives that fund renewable energy projects while ensuring that revenue savings achieved from these projects are protected for school districts, such as encouraging districts to allow individual school sites to share in dollars generated through their better energy and conservation activities.

- Introduce legislation that will encourage greater interest and investment for renewable projects at the local level. Local educational agency (LEA) energy savings programs and initiatives should be protected by excluding their savings from revenue limit calculations. (Intermediate goal)

- Encourage the California Energy Commission (CEC) to amend RPS Guidelines to allow Tradable Renewable Energy Credits (TRECs) from qualifying renewable energy projects. (Short term goal)

- Encourage school districts to allow individual school sites to share in any savings achieved through better energy and resource conservation behaviors. (Intermediate goal)

- Support Senate Bill (SB) 585 (Kehoe) so that renewable energy projects have a greater chance of "penciling out". (Short term goal)

Recommendation 2: Partnerships – Support efforts to broaden opportunities for schools to participate in the generation and use of the full range of renewable energy options (such as legislation similar to the introduced language in SB 383, Wolk); and to create partnerships that enable schools to pursue these opportunities and secure their educational, economic and environmental benefits.

- Support original wording of SB 383 (Wolk) with changes to include school based Joint Powers Authorities (JPAs) and designation of "benefitting account" to include accounts outside of district geographic boundaries.

    - School districts can net meter across all of <u>their</u> electrical accounts. (Short term goal)

    - Ability to partner with other public/private entities for generation, facilities. (Intermediate goal)

    - Flexibility to generate energy on non-school sites. (Intermediate goal)

- Spearhead public power advocacy on behalf of schools' energy interests and investments. (Intermediate goal)

- Support virtual net metering and feed in-tariff (Assembly Bill (AB) 2466 (Smyth) (Short term goal)

- Work with the California Public Utilities Commission (CPUC) to allow schools the ability to sell excess energy at a fair price (AB 920 (Huffman) (Short term goal)

Recommendation 3: Program Flexibility (Legislative/Regulatory Policy) – Examine and find ways to change existing review/approval and contracting processes and reauthorize state funding opportunities (i.e. Bright Schools) that would allow renewable energy construction projects to be completed in a more timely manner.

- Actively monitor the CPUC's implementation of AB 920 (Huffman) and advocate for rules that benefit school districts regarding:
    - Selling excess energy at a fair price.
    - Virtual net metering and feed-in tariff .
    - Support passage and implementation of SB 383 that:
        - Eliminates the 1 MW ceiling threshold for generation making schools eligible for utilities purchase.
        - Provides flexibility to allow one site to serve multiple school sites.
        - Provides flexibility to generate energy on non-school sites owned by districts (unused school sites, remote/TREC) and sell surplus from school sites and remote locations to utilities at fair market price. (Intermediate Goal)
- Implement a partnership with the DGS/DSA to independently review formulas and standards for renewable project life-cycle costs and projected savings. (Intermediate Goal)
- Authorize additional budget expenditures to allow for the reauthorization of the CEC Bright Schools program to assist districts in upfront baseline assessment financing. (Intermediate Goal)
- Maintain flexibility to use alternative methods to contract for energy service contracts and projects. (Intermediate Goal)

Recommendation 4: Procurement and Delivery – Develop standardized policies and processes to help local educational agencies address issues with the evaluation, procurement, financing and construction of renewable energy systems across their facilities.

- Preserve flexibility to use alternative methods to contract services (RFQ). (Short term goal)
- Develop a statewide template/best practices for energy project procurement steps endorsed by the California Department of Education (CDE). (Intermediate Goal)

- Create options for LEA financing and ownership of renewable energy project. (Long term goal)
    - Ownership
    - PPA
    - Leasing

Recommendation 5: Local Training and Leadership Education – The CDE should take steps to ensure that school district decision makers have access to training and resources that will help them reduce energy and water consumption in their schools and navigate the evolving renewable energy marketplace, for example the development or sponsorship of an energy schools academy.

- Provide resources, training, and recognition opportunities to key decision makers across all school districts for: (Short term goal)
    - Understanding various renewable energy options, including their costs and applicability.
    - Accessing external resources including federal, state, local case studies, and examples.
    - Site evaluation and renewable project planning.
    - Vendor and technology procurement and selection.
    - Project financing and contracting.
    - System commissioning and operations.
- Benchmark energy use for effectiveness. (Short term goal)
    - Establish independent review/baseline.
    - Assessment of generation and offsets. (Verify results)
    - Portfolio Manager (provided by the CEC) or other low to no cost Web sites that allow school districts to benchmark energy usage.
- Champion energy conservation efforts and funding opportunities for California school districts. (Intermediate goal)
    - Create an Energy Liaison position at the CDE.
        - Represent school districts at legislative and CPUC hearings.

    - Update school districts of regulatory/legislative changes and funding opportunities related to energy conservation.

- Develop a resource library for school energy conservation.

    - Quick and seamless method for allowing school districts to post RFPs for energy projects.

- Coordinate with the U.S. Department of Education to highlight best practices/demonstration projects that save money (i.e. Green Ribbon School program.)

Appendix A
State Agencies with Energy Responsibility

Policy and regulatory actions related to energy come from a number of agencies such as the California Public Utilities Commission (CPUC), the California Air Resources Board (CARB) and the California Energy Commission (CEC). The Department of General Services (DGS) approves facility projects and determines feasibility through formulas related to savings and lifecycle costs. The Division of the State Architect (DSA) reviews and approves most renewable energy system designs and installations.

The CPUC regulates rates and tariffs and will be instrumental in shaping the economics for renewable generation for schools. The CEC determines the rules and constraints relating to the RPS system. The CEC also manages certain loan and grant programs funded by Federal Recovery Act legislation (and other sources) that supports renewable energy generation and energy efficiency. Such programs offer funds and/or technical assistance that may benefit schools contemplating renewable energy projects. Therefore, it is essential that there are linkages among the three agencies that allow for useful input between the CDE, the CEC, and the CPUC on school energy needs and facilities.

The CARB is also developing a market for carbon credits that could provide more resource dollars for entities that are proactive in producing electricity from a renewable source (Tradable Renewable Energy Credits) or in reducing greenhouse gases (Offsets).

All of these organizations make decisions that may impact how renewable projects are sited and how the electricity generated may be used and paid for.

Appendix B
Legislative Actions

The Legislature also has had a key interest in renewable public projects and they currently have a number of bills that could change the way renewable projects are treated.

Current Law:

AB 920 (Huffman) (Chapter 376, Statutes of 2009)

This applies to Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E) and San Diego Gas and Electric Company (SDG&E) Net Energy Metering (NEM) customers. Requires utilities to offer compensation to customers for any net surplus electricity they generate over a 12-month period. The provisions of the new law will be implemented in 2011 (the compensation provision became effective in 2010). Payback rates are determined by the CPUC and effective on January 1, 2010, to be paid out the following year.

Discussion: This bill was passed and required the CPUC to establish rates by January 2011. This hasn't happened yet. Good fiscal decisions on buying or leasing alternative energy capital cannot be made until the rates are known.

In addition, this bill only provides compensation for physical over-generation on a given account, whereas on a time of use (TOU) tariff the system starts "giving away" kWhs when it is producing as little as 70-80% of the on-site load. Under AB 920, the customer would receive nothing for this 20-30% "deadband.". This should be changed.

AB 2466 (Smyth) (Chapter 540, Statutes of 2008)
Effective January 1, 2009: Authorizes a local government entity to receive a credit on their electric bill for power generated from a renewable energy facility that generates more energy than is needed to serve the electrical load of a governmental entity owned or controlled site where the facility is located.

Discussion: The Renewable Energy Self-Generation Bill Credit Transfer Program (RES-BCT) tariff is now active at all three investor owned utilities (IOUs). The low valuation of the energy available for the credits are about half as much as one would achieve with net metering. The tariff rules on this law are so restrictive than no customer has yet employed it – this law needs to be liberalized.

SB 383 (Wolk) would have addressed this, however, it is currently an intent bill and we are awaiting new language in the bill that may resolve these issues.

Legislative Session 2011-2012 Current Bills:

SB 118 (Yee)
This bill makes changes to *Government Code* (*GC*) Section 4217 to require local public agencies, including schools, to provide public notice for energy service contracts and related facility leases. The bill language is expected to be amended per agreement with the author to

allow for maximum flexibility to the local agency following the code's stated intent in *GC* Section 4217.12.

Discussion: As originally drafted, the bill would have required competitive bidding which would have had a prohibitive effect on these energy contracts and projects. The State Superintendent of Public Instruction (SSPI) should continue to monitor the bill to allow for maximum flexibility to schools so that these projects continue to move forward with appropriate transparency and flexibility for schools.

SB 383 (Wolk)
Effective January 1, 2009: Authorizes a local government entity to receive a credit on their electric bill for power generated from a renewable energy facility that generates more energy than is needed to serve the electrical load of governmental entity owned or controlled site where the facility is located.

Discussion: The RES-BCT tariff is now active at all three IOUs. The low valuation of the energy available for the credits are about half as much as one would achieve with net metering. The tariff rules on this law are so restrictive than no customer has yet employed it – this law needs to be liberalized.

SB 383 (Wolk) would have addressed this, however, it is currently an intent bill and new language in the bill may resolve these issues.

SB 585 (Kehoe)
Amends an existing law that requires the CPUC, in implementing the renewable energy funding programs, to ensure that the total cost over the duration of the program does not exceed a specified sum, and that imposes monetary limits on programs funded by charges collected from electrical corporations. This bill imposes the total amount as a limit on the amount of moneys collected through charges on electric utility customers.

Discussion: Kehoe's bill would replenish the shortfall in the California Solar Initiative (CSI) and provide some amount of rebate to nonresidential electricity customers for all 10 steps in the CSI program. The CSI has been well-used by many school districts and its funds have been depleted faster than envisioned. This bill allows more dollars to be put into the program.

The CSI program should be expanded to include other renewables, not just solar.

This bill should also consider refunding with greater dollars and higher standards that have been previously used and proven viable as incentives to stimulate the growth of renewables.

Appendix C
Bibliography

1) AB 512 (Gordon) – This bill modifies *Public Utilities Code* (*PU Code*) Section 2830 to expand the maximum size for renewable generating systems eligible for the RES-BCT Program from 1 MW to 5 MW. The Office of Governmental Affairs SUPPORTS this bill. See: http://docs.cpuc.ca.gov/PUBLISHED/REPORT/133626.htm

2) AB 920 (Huffman) was heard at the CPUC on May 5, 2011. See this summary from Vote Solar: http://votesolar.org/2011/04/ab-920-payment-for-net-surplus-compensation/ FAQ from PG&E on AB 920 – http://www.pge.com/myhome/saveenergymoney/solarenergy/nembilling/faq

3) A good summary of California's Net Metering rules (with links to the State's Web site with additional information) and how the bills discussed alter the original rules. See: http://en.openei.org/wiki/California_-_Net_Metering_(California)

4) Department of Energy's (DOE's) *Solar America Communities Solar Powering your Community – A Guide for Local Governments* – while it does not address California public schools specifically, it has a wealth of information on many of the same issues that cities confront when planning for solar.

5) Benchmarking - the ongoing monthly review of energy performance to determine if a building is getting better or worse in comparison to itself, other buildings in the portfolio, and/or peers.

   Portfolio Manager is an interactive energy management tool that allows you to track and assess energy and water consumption across your entire portfolio of buildings in a secure online environment. Whether you own, manage, or hold properties for investment, Portfolio Manager can help you set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive EPA recognition for superior energy performance.
   http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

Grid Neutral Schools
Policy Sub-committee Memo

I. Sub-committee Topic: Grid Neutral Schools

Chair

- Randy Britt, Parsons

Members

- Nicole Anderson, California State University
- Laura Battise, Chevron Energy Solutions
- Margarita H. Colmenares, Think Verde
- David Gomez, NECA/IBEW Local 11
- Enrique Palacios, Pittsburg Unified School District
- Jason Retterer, Lombardo & Gilles, LLP

Support Staff

- Diane Waters, California Department of Education, School Facilities Planning

Sub-committee Charge:
The sub-committee was charged with making recommendations on how the number of grid neutral schools can be increased. Work included recommendations to eliminate legislative and regulatory obstacles to grid neutral schools.

II. Context

Educational Context

- Grid-neutral schools offer technologies that represent a potential hands-on learning tool which may be incorporated into the educational science curriculum.

- Instead of being an abstract term, “going green” can become a tangible reality for students by engaging them in student-led projects and programs across all sustainable technologies. These students will be empowered to create a social shift for future generations to have a deeper understanding and relationship with the term.

- Faculty will have a new tool for instruction that will not only help students in their learning pathway, but will become a cost-saving mechanism for the schools.

Legislative/Policy Context

- Regulatory changes are needed to allow for more cost effective solar installations on school buildings.

State incentives to promote solar installation at existing and new schools are gone.

Political/Fiscal Context

- School funding from the state has been severely cut in recent years, impacting preventive maintenance, repairs, capital improvements, and expense savings projects.
- Schools need immediate assistance to mitigate the impacts of rising utility costs.
- Projects that would generate utility savings would not only pay for the investment, but could also be used to offset other operational and payroll expenses.

III. Key Recommendations and Options

Recommendation 1: Make regulatory changes to allow for more cost effective solar installations on school rooftops.

- **Analysis of the Problem:** Although it is relatively easy to install solar installations on shade structures for schools, and the Division of State Architect (DSA) has a predetermined method for approving those types of installations, it is very difficult to meet the *California Building Code* (*CBC*) standards in effect for solar installations, particularly for rooftop installations which are not specifically designed to be applicable to solar installations, and do not allow self-ballasted photovoltaic solar installations on rooftops.
- **Proposed Solutions and Strategies:**
    - Promote revisions to the *CBC* that would allow for self-ballasted photovoltaic solar installations on rooftops. (Intermediate Term)
    - Update DSA standards to meet emerging technologies. (Intermediate Term)
    - Continue to support shade structure installations for solar projects in schools. (Short Term)
    - Update California Public Utility Commission (CPUC) and municipal utility regulations to allow for one utility account per district for energy generation that would facilitate district-wide grid neutrality. (Short Term)

Recommendation 2: Provide sufficient funding capability for schools to implement renewable energy conservation measures.

- **Analysis of the Problem:** State budget cuts, bond capacity limitations, and lack of available general fund sources, combined with the evaporation of California Solar Initiative (CSI) incentives have made for a very difficult environment to support the financial case for solar installations. Traditional Energy Services Company (ESCO) solutions are too costly and time consuming for timely execution.

- **Proposed solutions and strategies:**
    - Create energy conservation and renewable energy rebates dedicated to schools. (Intermediate Term)
    - Create a dedicated category for statewide school construction bond for renewable energy projects. (Intermediate Term)
    - Work with the CPUC to extend net metering benefits indefinitely. (Short Term)
    - Work with the California Energy Commission (CEC) and CPUC to extend CSI benefits or provide for improved feed-in tariff. (Short Term)
    - Carve out an allocation of Proposition 1D funds that would provide for a 75/25 split for schools that achieve grid neutral status for both new schools and modernizations. (Short Term)

Recommendation 3: Develop and implement effective energy efficiency programs for existing schools. First and foremost, energy audits need to be done that would create benchmark data.

- **Analysis of the Problem:** Most schools have not developed effective energy efficiency programs, don't know what their Key Performance Indicators (KPIs) are, and have not had energy assessments done to benchmark their current operating data from which to determine what can be done to minimize energy usage and install sufficient renewable energy resources to achieve grid-neutral status.
- **Proposed solutions and strategies:**
    - Create a statewide template for energy audits and energy efficiency strategies. (Short Term)
    - Conduct statewide energy audits and create a central repository with the state for the data. (Intermediate Term)
    - Work with the CPUC, the investor-owned utilities, and municipal utilities to make electricity metered data available to all schools at no cost. (Intermediate Term)
    - Provide energy efficiency education for users and administrative staff; that is, develop a statewide energy education program. (Intermediate Term)

Recommendation 4: Encourage new school construction projects and major modernization projects to be designed for true grid neutral operations.

- **Analysis of the Problem:** New schools are being designed with small area rooftops populated with high numbers of rooftop air conditioning and other mechanical systems preventing the best available use for rooftop solar installations.

- **Proposed solutions and strategies:**
    - Work with the DSA to better understand how grid neutral schools can be achieved through both new construction and modernization projects. (Intermediate Term)
    - Utilize the DSA resources to create design templates for schools that allow for greater renewable energy installation capacity with the lowest energy usage. (Intermediate Term)
    - Encourage design teams to utilize best available technologies and design with future renewable energy and the capacity for emerging technologies in networked energy storage systems in mind. (Intermediate Term)
    - Create a centralized best practices repository with the state to share how grid-neutral schools were realized within other districts (Intermediate Term)

Financing of High Performance Schools
Policy Sub-committee Memo

I. Sub-committee Topic: Financing

Chair

- David Walrath, Small School District Association

Members

- Bill Kelly, Sunpower Corporation
- Bernie Kotlier, NECA/IBEW Joint Labor Management Cooperation
- Philip Kranenburg, College of Marin
- Jody London, Oakland Unified School District, Board of Trustees
- Steve Rogers, San Mateo Union High School District

Support Staff

- Shannon Farrell-Hart, California Department of Education, School Facilities Planning

Sub-committee Charge

The sub-committee was charged with reviewing and making recommendations regarding how existing sources of funds can be maximized for local educational agencies (LEAs) to make buildings more energy efficient and generate renewable energy at school facilities. Work included recommendations to eliminate legislative and regulatory obstacles.

II. Context

California has some of the highest energy costs in the United States. These costs are both a burden and an opportunity. The burden is that scarce education funds must be used to pay facility heating, cooling, and lighting costs. The opportunity is that California can reduce demand for energy by better managing energy use and installing energy efficiency technology, and California has significant solar, geothermal, wind, and other renewable energy resources that can be used to offset remaining energy demand.

California's *Energy Action Plan*, adopted in 2003 and updated in 2005 and 2008, by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC), directs that new electricity resources be added in the following order:

1. Energy efficiency
2. Renewable energy
3. Clean fossil fuel

Recognizing the opportunity for California to increase its use of renewable energy to meet its energy needs, Governor Brown signed into law a requirement that 33% of the electrical energy used in the state is provided from renewable resources by 2020 Senate Bill (SB) 1X2, (Chapter 1, Statutes of 2011). California's public school facilities provide a great resource to support the state in this mission to significantly increase its use of energy efficiency and renewable energy.

In addition to generating clean electricity, investments in energy efficiency and renewable energy installations at public schools provide an opportunity to enhance the learning environment, and prepare students for opportunities in emerging clean technology industries. California public schools can train students in new careers, while 1) meeting the state and federal government's policy goals to reduce greenhouse gas emissions; and 2) reducing dependence on imported petroleum products.

California's public schools, however, face operational and financial barriers to accomplishing these goals. Operational barriers exist, such as a local school district generating energy in excess of its needs at one school site and are being limited in selling its excess back to the grid or transmitting that excess to another school across town, or to a different district's facility across district boundaries. Also, even for the largest school districts, there are barriers in economies of scale, scope, and access to financing to overcome the economies of scale required for energy resource poor school districts compared to energy resource rich school districts. Removing the operational barriers will require both regulatory and legislative action. Addressing the financial barriers will require access to new financial tools and capital funds.

III. Key Recommendations and Options

There are many policy issues the sub-committee considered, such as, should the financing and capital access be available based on need or based on the most efficient use of capital to be effective – i.e. "What pencils out best?" The allocation also should be based on a loading order action plan of: 1) energy audits by qualified auditors; 2) increase site efficiency by reducing building energy loads; and 3) new energy generation. The sub-committee discussed other policy issues, including the tension between public benefits (greenhouse gas reductions, less energy use, etc.) versus private good (school district general fund savings or revenue) that stay with the district.

The sub-committee concludes that the state should not limit new financial tools and access to capital for schools based on the school's energy needs, but instead should create financial tools and incentives that result in the maximum energy efficiency and renewable generation by public schools. The sub-committee suggests the political process should determine the public versus the private benefit issues.

The sub-committee has adopted five recommendations. While the recommendations will be presented individually, they have significant overlap and interaction. The sub-committee did not adopt separate recommendations simply related to energy efficiency or simply to energy generation. Rather, most of the recommendations would apply to both efficiency and generation. For example, Recommendation 1 regarding new and expanded funding sources could be used for either energy efficiency, energy generation, or both. On the other hand, Recommendation 2, to maximize production at a school site and Recommendation 3 for Joint Powers Authorities (JPAs) are more directed toward regulatory issues that are related to generation and transmission of generated energy than efficiency at a particular site.

Recommendation 1: New and expanded funding sources.

The sub-committee recommends that the state investigate the use of multiple new and expanded revenue sources such as expanding the Public Goods Charge on utility bills, utility surcharges dedicated to a revolving loan fund for school energy efficiency projects, revenue bonds, State General Obligation (GO) bonds, private investment funds, and authorizing school districts or local JPAs to issue local revenue bonds. The sub-committee also recommends that the state consider state revenue bonds, as well as State GO bonds targeted for providing loans to fund school districts for energy efficiency and generation projects.

- **Rationale:** School districts have limited access to their assessed valuation for bonding purposes. That limited access is currently being used for new construction or modernization of existing school facilities. The local assessed valuation is directed toward the matching state funds for those purposes.

- **Analysis of the Source of the Problem:** Current statutory law contains a limitation on the amount of assessed valuation that is available for bonding capacity at school districts.

- **Description and Analysis of the Proposed Solution:** The sub-committee discussed and recommends that because of the limitations on local access to property tax backed bonding, additional funding through state and local revenue bonds, as well as GO bonds, is necessary.

  The sub-committee proposes increasing the local bonded debt capacity for bonding restricted solely for energy efficiency and generation projects. The current bond capacity cap is 1.25% of assessed valuation for elementary and high school districts and 2.5% for unified school districts. The sub-committee suggests that the percentage be increased by .25%, for elementary and high school districts up to 1.5% and unified districts from 2.5% to 3.0%.

  Authorizing local revenue bonds for school districts, as well as issuing state and local revenue bonds and state GO bonds, would require legislative action. Both the local revenue bond authority and the assessed valuation bond capacity increase would be short-term actions that have long-term effects.

  School districts should be encouraged to collaborate with one another and with other local government entities to take advantage of economies of scale and pool scarce technical and financial resources.[1]

  The California Solar Initiative and Public Goods Charge funded initiatives should be continued and expanded with specific guaranteed funds for school projects.

[1] One example of this is the Leadership in Energy Efficiency Program operated by the Alameda County Office of Education (ACOE). Under this pilot program sponsored by PG&E using public goods charge funds, ACOE is offering energy management services to local districts. Similarly, the San Diego County Office of Education (SDCOE) sponsors an Energy Joint Powers Authority whose goals include: all schools are off the grid; schools have lower baseline energy usage, and schools are able to scale up alternative energy production to support expected increase in technology in the classroom.

Utilities should be required to purchase at peak load prices for a guaranteed term the excess energy provided through state approved or funded school energy projects. The state approved or funded projects would be required to meet eligibility requirements based on CEC loading standards.

- **Strategy:** The strategy is to include within the state's 2012 GO bond provisions for matching grants to school districts based upon energy efficiency and renewable generation at the same time as a state revenue bond would provide local incentives for energy efficiency and generation through no cost and discounted state loans. This would build upon the incentives included in Proposition 1D (2006) for designing new schools to meet the green building criteria in the Collaborative for High Performance Schools (CHPS).

  Part of this strategy is to conduct polling to determine the public's willingness to provide grants and loans, as well as buyouts of low principal and interest loans to encourage school district energy efficiency and production.

Recommendation 2: Maximize production at school sites.

The sub-committee recommends that net metering caps be eliminated so that energy generated at one site can be shared and credited to other sites and allow the surplus to be distributed to within a school district.

To ensure a source of private capital, energy generated on or off-site must be purchased under long term contracts as a renewable energy by the utility serving the district, with under feed-in tariff requirements.

- **Rationale:** The sub-committee believes that these actions would maximize renewable generation, as well as reward the combination of efficiency and excess generation at school sites following if the *Energy Action Plan* loading order is required.

- **Analysis of the Source of the Problem:** The sub-committee discussed the barriers to selling energy that are created at a site if that energy is greater than the amount needed by the site. Current barriers, particularly in the limitations on being able to sell back to investor-owned utilities excess power, result in inefficient allocation of energy resources. A site may be able to generate two or three times the amount of energy needed to be grid neutral, but it would not make the investment in excess energy generation because the investment could not be funded by selling the excess energy production. The second barrier is that, even if the school could fully sell all excess generation to the utility, there is no assurance the utility would buy the excess. Current law and regulation would need to be changed to require the long term purchase of that excess at a rate of return on investment that is equal to the cost of that excess generation.[2]

[2] The California Public Utilities Commission in June 2011 adopted a methodology for compensating customers for excess electricity they produce when taking service under net energy metering tariffs (Decision 11-06-016).

The sub-committee also discussed the alternative of allowing the excess generation to be transmitted and used at other sites within the school district or adjacent school districts or other government entities. This would require the owners of distribution and transmission lines to provide low or no-cost open access to their distribution and transmission lines for the excess generation.

- **Strategy:** The recommendation requires significant changes in law and regulations. Because there have been a considerable number of bills introduced in the current legislative session to improve the net metering laws in California, we recommend gathering support for those bills that will improve state laws (see attached list of net energy metering bills under consideration).

Recommendation 3: Joint Powers Authorities (JPAs) and other combinations.

The sub-committee recommends that school districts be given the authority to create energy JPAs and allow those JPAs to engage in energy management activities, including energy efficiency, renewable energy, and related activities.

- **Rationale:** The sub-committee discussed and concluded that regional energy efficiency and generation opportunities would maximize efficiency and generation better than school district by school district. Funds could be leveraged in a way where a school district that was energy resource poor could provide financial support and receive energy from school districts that were energy resource rich. Pooling the finances and the resource excess capacity would maximize generation and result in more schools becoming grid neutral.

- **Description and Analysis of the Proposed Solution:** *Government Code* § 52000-52012, the Community Energy Authority Act, allows cities or counties, individually or joining together in Joint Powers Authorities, to plan and implement comprehensive energy management strategies to encourage energy efficiency and conservation and minimize the impacts of future price increases. School districts should be encouraged to form and/or participate in existing JPAs with this purpose. This should provide districts that install generation resources in excess of their own demand with greater access to existing transmission facilities and would provide better opportunities for sale of excess energy generation to other governmental entities within the geographic area of the school JPA or school district.

  This recommendation is a mid-term (incentives for the creation of or participation in a JPA) and potentially long-term recommendation (creating greater opportunities for districts that so desire to participate in energy markets).

Recommendation 4: Incentivize local financing.

The sub-committee recommends creating opportunities for expanding public/private partnerships and creating tax incentives for corporations to invest in school energy generation to provide more access to capital.

- **Description and Analysis of the Proposed Solution:** Currently school districts have few incentives to make significant investments in excess generation capacity. There is

incentive for energy efficiency and generation but only on a site-by-site basis and only to the extent of what is anticipated to be needed by that site, and finally, only if adequate financing can be found that does not put pressure on the school district's general fund.

One limitation for local funding is that school districts are not eligible to receive renewable energy credits and do not have the opportunity to sell or trade credits in a primary or secondary market. The sub-committee believes that incentivizing local funding should include the ability for schools to receive and sell renewable energy credits.

The sub-committee believes school districts must have energy audits to access state energy project funds. Districts should have access to the California Department of Education (CDE), California Energy Commission (CEC), and California Public Utilities Commission (CPUC) energy audits along with a certification program for private providers of energy audits. The CDE and CEC should provide energy project analysis for local funded projects and private funded projects to ensure that best practices and maximum cost effective energy efficiency and generation practices are used for school district projects.

- **Rationale:** These opportunities, in combination with local revenue bond authority, would provide funding to be: 1) part of a district match in accessing state grant or loan funds; 2) resources for funding offsite energy generation; or 3) supplements for local GO bonds.

- **Strategy:** Some of these strategies are in law, such as the public/private partnerships and the third party investors. Tax incentives for corporations are partially in law, but they are not well integrated or incorporated with the ability for local sharing through revenue bonds and expanded access to local GO bonds.

Recommendation 5: Incentivize the creation of Renewable Energy Credits (REC) marketplace.

Currently, the market for renewable energy credits (RECs) is illiquid in California, limiting the ability for schools who invest in renewable energy projects to capitalize on the environmental impacts of these investments. With Governor Brown's signing of SB 1X2 on April 12, 2011, there is a great opportunity to utilize renewable energy investments on public school properties in support of meeting the state's renewable energy goals while enabling districts to receive REC payments for their solar investments. To facilitate this benefit, the CPUC must modify its guidelines under the California Solar Initiative (CSI) to facilitate the sale of RECs from solar projects completed under the CSI. This modification is currently under consideration by the CPUC.

Attachment 1

2011 Legislative Session – The following is a list of proposed legislation that may influence LEAs' abilities to build energy efficient and energy generation projects.

AB 204 – Author Halderman, Sales and Use Taxes: Exemptions: Biomass Energy

AB 436 – Author Solorio, Public Works Prevailing Wage

AB 512 – Author Gordon, Local Government Renewable Energy Self-Generation Program

AB 603 – Author Perez, Energy: Renewable Resources

AB 631 – Author Ma, Public Utilities: Electric Vehicle Charging Stations

AB 721 – Author Bradford, Renewable Energy Resources: Solar Energy Systems

AB 722 – Author Bradford, Utility Rates: Costs and Rate Increases

AB 723 – Author Bradford, Energy: Public Goods Charge

AB 725 – Author Bradford, Utility Service: Undergrounding of Facilities

AB 796 – Author Blumenfield, Energy: Clean Energy Economy

AB 850 – Author Gordon, State buildings: Efficiency

AB 864 – Author Huffman, Electricity: Self-Generation Incentive Program

AB 865 – Author Nestande, Property Tax: Exclusion: Active Solar Energy System

AB 904 – Author Skinner, Energy Efficiency

AB 915 – Author Fletcher, California Solar Initiative

AB 932 – Author Blumenfield, Renewable Energy Resources: Renewable Transition Funding

AB 940 – Author Bradford, Public Utilities Commission Report

AB 982 – Author Skinner, Energy: Solar Energy Parks Program

AB 1054 – Author Skinner, Energy: Clean Energy Financing

AB 1073 – Author Fuentes, Electrical Corporations Energy Efficiency Programs: Application Requirements

AB 1150 – Author Perez, Self-Generation Incentive Program

AB 1186 – Author Skinner, Electrical Generation: Source Disclosures

AB 1261 – Author Fletcher, Local Government Renewable Energy Self Generation Program

AB 1302 – Author Williams, Electricity Distribution Grid Upgrade

AB 1303 – Author Williams, Energy Programs

AB 1361 – Author Perea, Electricity: Net Metering

AB 1376 – Author Nestande, Sales and Use Tax Exemption: Production of Electrical Energy

AB 1385 – Author Bradford, Electricity

AB 1391 – Author Committee on Utility and Commerce, Electricity: Net Energy Metering: Report

SB 128 – Author Lowenthal, School Facilities Funding: High Performance Schools

SB 132 – Author Lowenthal, School Facilities: State Planning Priorities

SB 142 – Author Rubio, Electrical Rates

SB 343 – Author DeLeon, Energy: Efficiency

SB 370 – Author Blakeslee, Energy: Net Energy Metering

SB 371 – Author Blakeslee, Electrical Corporations

SB 372 – Author Blakeslee, Distributed Generation

SB 383 – Author Wolk, Renewable Energy

SB 410 – Author Wright, Public Interest Research, Development and Demonstration

SB 454 – Author Pavley, Energy Efficiency Standards: Energy Commission

SB 489 – Author Wolk, Electricity: Net Energy Metering

SB 536 – Author DeSaulnier, Property Tax Revenue Allocations: Public Utilities

SB 555 – Author Hancock, Local Government: Community Facilities Districts

SB 564 – Author Evans, Energy Efficiency

SB 569 – Author Kehoe, Alternative and Renewable Fuel and Vehicle Technology

SB 585 – Author Kehoe, Energy: Solar Energy Systems: Funding

SB 771 – Author Kehoe, California Alternative Energy and Advanced Transportation Financing Authority

SB 790 – Author Leno, Electricity: Community Choice Aggregation

SB 854 – Author Blakeslee, Renewable Energy Resources

Schools of the Future Team Acknowledgements

The Superintendent wishes to thank the following individuals for their contribution to the Schools of the Future effort.

First Name	Last Name	Organization
Cathy	Allen	Coalition for Adequate School Housing
Nicole	Anderson	California State University
Mike	Armsby	Soladigm
Eric	Bakke	Los Angeles Unified School District
Andrew	Ball	Webcor Builders
Panama	Bartholomy	California Energy Commission
Laura	Battise	Chevron Energy Solutions
Terry	Bradley	School Business Consulting, Inc.
Randy	Britt	Parsons
Cynthia	Bryant	California Charter School Association
Cruz	Bustamante	Former Lt. Governor, State of California
Donna	Carpenter	Development Consulting Services
Steve	Castellanos	Caldwell, Flores, Winters, Inc.
Paul	Chapman	Inverness Associates
Scott	Clark	Local Government Commission
Woodrow	Clark	Clark Strategic Partners
Paul	Cohen	Northern California Carpenters Regional Council
Margarita	Colmenares	Think Verde
Kurt	Cooknick	American Institute of Architects, CA Council
Chris	Cox	San Bernardino County Schools Superintendent's Office
Cesar	Diaz	State Building and Construction Trades Council
Gary	Dillabough	The Westly Group
Joe	Dixon	Santa Ana Unified School District
Dorene	Dominguez	VANIR Development Company, Inc.
Tom	Duffy	Coalition for Adequate School Housing
Richard	Duncan	DC Architects
Ted	Dutton	School Facility Advisors
Gary	Eberhart	Seward L. Schreder Construction, Inc.
Stephen	English	Advancement Project
Anna	Ferrera	School Energy Coalition
Benjamin	Foster	Optony
Chip	Fox	Sempra Energy Utilities
Paul	Fulton	Cisco
Mavonne	Garrity	Senator Alan Lowenthal
Garry	Gibbs	California Building Industry Association
Jeffrey	Gilles	Lombardo and Gilles, LLP
David	Gomez	NECA/IBEW Local 11
Christopher	Grimes	Roseville Joint Union High School District

First Name	Last Name	Organization
Gwen	Gross	Irvine Unified School District
Thomas	Hall	Los Angeles Community College District
Bruce	Hancock	Hancock, Gonos, & Park, Inc.
Tom	Hansen	IBEW Local 302
Patti	Herrera	Murdoch, Walrath, & Holmes
John	Ivey	Prefast Plantcrafted Buildings
Bill	Kelly	SunPower Corporation
Tom	Kelly	KyotoUSA
Bruce	Kerns	Stone & Youngberg
Sophia	Kwong Kim	Assembly Member Julia Brownley
Chuck	Kluenker	Vanir Construction Management
Laura	Knauss	Lionakis
Bernie	Kotlier	NECA/IBEW Joint Labor Management Cooperation
Philip	Kranenburg	College of Marin
Steven	Ladd	Elk Grove Unified School District
Greg	Larkins	Sacramento Central Labor Council
Alexander	Leon	Vanir Energy
Bob	Linscheid	Board of Trustees, California State University
Jody	London	Board of Trustees, Oakland Unified School District
Dave	Long	Dave Long & Associates
Richard	Lyon	California Building Industry Association
Stuart	Markey	Parsons
Phyllis	Marshall	Manatt | Phelps | Phillips
Thomas	Martinez	IBEW NECA Los Angeles
Elizabeth	McManus	San Mateo Union High School District
Dwayne	Mears	The Planning Center Meehleis
Bill	Meehleis	Modular Buildings Prefast
Mahendra	Mehta	Plantcrafted Buildings
Mike	Miller	Butte-Glenn Community College District
Deborah	Moore	Green Schools Initiative
Mary	Morris	HMC Architects
Carolyn	Nelson	CSU East Bay - Department of Education
Mikal	Nicholls	San Diego County Office of Education (Energy JPA)
Steve	Nielsen	Munibond Solar
Michael	Nishiyama	SolPower Partners
Robert	Olin	Brutoco Construction Management Group, Inc.
William	Orr	Collaborative for High Performance Schools
J.R. (Eddie)	Orton	J.R. (Eddie) Orton
William	Owens	Board of Trustees, Yolo County Office of Education
Enrique	Palacios	Pittsburg Unified School District
Jose	Perez	Cailfornia Utilities Diversity Council
Mo	Qayoumi	California State University, East Bay
Wayne	Ratkovich	The Ratkovich Company

First Name	Last Name	Organization
Jason	Retterer	Lombardo & Gilles, LLP
Steve	Rogers	Board of Trustees, San Mateo Union High School District
Linda	Rondeau	Pittsburg Unified School District
Catherine	Sandoval	Santa Clara University School of Law
William	Savidge	West Contra Costa Unified School District
Jack	Scott	California Community Colleges System
Robert	Smith	Painters & Allied Trades District Council 36
Mamie	Starr	San Joaquin County Office of Education
Alice	Sung	Greenbank Associates
Ashleigh	Talberth	U.S. Green Building Council
Gaddy	Vasquez	Southern California Edison
Wendell	Vaughn	Perkins+Will
Stephen	Velyvis	Miller Starr Regalia
Jose	Vilar	Baker-Vilar Architects
Jeff	Vincent	UC Berkeley, Center for Cities & Schools
David	Walrath	Small School District Association
David	Weeden	Sol Partners Solutions
John	White	Center for Energy Efficiency and Renewable Technologies

California Department of Education Staff

Dr. William Ellerbee, Jr.
Kathleen Moore
Anna Borges
Craig Cheslog
Lisa Constancio
Shannon Farrell-Hart
John Gordon
Dave Hawke
Paul Hefner
Tom Herman
Andrew Nave
Dana Neubauer
Liese Olukoya
Michael O'Neill
Monique Ramos
Kat Reese
Barbara Ross
Matt Sanchez
Kathleen Seabourne
Jeffrey Thorne
Diane Waters
Brandon Wolfe
Diane Works
Fred Yeager
Shannan Young

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