

**Synthesis of the FAF- France– Sia Conseil trip:
Fighting Climate Change : California’s Strategies**

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Object : Synthetic report on the Faf-France Sia Conseil trip

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1. LIST OF PARTICIPANTS

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Dalkia : Philippe Stohr
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Gaz de France : Alexandre Jeandel
Groupe La Poste : Stéphanie Scoupe
Sia Conseil : Rodolphe de Beaufort, Emmanuel Bouquillion
FAF- France : Benjamin Thibault

- American institutions and groups met:

McKinsey : Matt Rogers
NRDC : Kristin Grenfell, Amanda Eaken
E2 : Marc Stolman
PG&E : Darren Bouton, Halley Fitzpatrick, Jon Forrester, Jasmin Ansar
SCE : Gene Rodrigues, Erwin Furukawa, Tory Weber
Senator Boxer San Francisco's office : Jennifer Tang, Megan Miller
Chevron Energy Solutions : James Davis, William Brockenborough, Diane Padurean
Mission économique de France: Didier Janci, Jean Vaury
Consulat de France : Consul Pierre-François Mourier, Pierre Mattot
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Lawrence Berkeley National Laboratory : Donald F. Grether, Curtis M. Oldenburg, Larry Myer, Jonathan G. Koomey, Stéphane de la Rue du Can, Elaine Chandler, Susan Jenkins, Aindrila Mukhopadhyay.
Chevron Corporation : Bob Harrer, K.C. Bishop III
CalEPA: Cindy Tuck, Daniel Pellissier
California Energy Commission : Commissioner James D. Boyd, Michael A. Smith
California State Assembly: Loni Hancock (California Assemblymember), Fabian Nuñez (Speaker of the house), Dan Chia, Gabrielle Zeps, Carol Baker, Edward Randolph, Jim Collin, Jennifer Galehouse, Rosemary Sanchez, Douglas Morrow.
California Iso : Jim McIntosh, David Hawkins, Steve Berberich, Mary McDonald
California Fuel Cell Partnership: Catherine Dunwoody
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Precourt institute For Energy Efficiency : James Sweeney
Energy Modeling Forum : John Weyant, Hill Huntington
Program on Energy and Sustainable development : Lawrence Goulder, Mark Thurber, Michael Wara
Global Climate and Energy Project : Sally Benson, Richard Sassoon

2. SYNTHESIS

2.1. Key California's figures:

- 37 million people – 26 vehicles – GDP : \$ 1,600 billion
- Primary energy in power production: Gas (41.5%) – Big Hydro (19%) – Coal (15.7%) – Nuclear Energy (12.9%) – Renewables (10.9%)
- CO2 emissions: 500 Million metric ton CO2 in 2006 – two sectors represent 70% of total emissions: Transportation (41%) and Power production (29%)

2.2. Historical highlights, the California crisis:

- The State of California reformed its energy system in 1998, deregulating it from production to commercialization, also excluding long term and mutual agreement supply contracts. The goal was to push for a decrease of prices, retail prices being cap by regulation until 2002.
- In 2000, major irregularities triggered a serious crisis that forced main actors to bankrupt, as they were facing the untenable situation of having to cope with capped selling prices while spot sourcing prices were skyrocketing. The State was forced to interfere, taking the burden of buying energy directed to consumers, at a really heavy cost (supplemental debt: \$45 billion.)
- In 2001, the power market is forced to go backwards, with new rules tightening the market of electricity: Transportation caISO – Distribution and Commercialization: 3 Investors Owned Utilities (IOUs) - PG&E, SCE and SDG&E – who holds 90% of the total market).
- Since then, the financial balance of the State forced it to freeze investments in the development and maintenance of the network infrastructures.

2.3. A Hybrid Energetic Model that pushes for innovations.

- The control of the Energy demand falls to the IOUs. A market mechanism, Decoupling, is re-established in 2004. It guarantees the IOU a ROI that does not depend on how much they sell.
- Energy Savings becomes a goal set by the CPUC to all Energy utility companies. This system incites the actors to reach their objectives with a bonus/penalty linked to how well they perform. Financing is assured through 1% taxation on the final consumer.
- Within this framework, the IOUs offer professionals continuously higher level of contractual services and promote energy efficiency (“Shared Savings”)
- The Transmission Network (CAISO) is heavy on load shedding in case of bigger peaks: alert mechanism of the population through commercial adds (“Flex Yours Power”) and control of the consumed load through an Energy box directed via radio waves (under development)
- California electric consumption per capita is stable since 1975, and way under the national average. Some studies indicate that 2/3 of this gap can be explained through demographic, climatic, and environmental favorable conditions. The impact of outsourcing by California industry on electric consumption was not studied.

2.4. A weight-bearing political context:

- For 20 years, the State of California has been encouraging energy savings in order to develop its competitiveness and improve air quality.
- The election of Arnold Schwarzenegger in 2003 led a real will for political reforms, including some breakthrough pushed forward by Democrats.
- The new awareness about climate change thrust in the past two years a real development of policies framing the reduction of greenhouse gases (GHG) emissions.
- This awareness was formalized under the Energy Action Plan (EAP in 2003 and EAP II in 2005) by main agencies in order to define common goals and actions.

2.5. Energy Action Plan II (Oct. 2005): a base for AB-32

Initially limited to Electricity and natural gas, EAP II also includes now transportation.

2.5.1. Electricity and Natural Gas.

The « Loading Order » defines three priority levels.

- Short term: better energy efficiency and better control of power consumption (« Demand Response » & « Demand Side Management »).
- Middle term: increase of the renewables share in the energy mix and development of decentralized production (cogeneration, wind, solar, etc.) – Renewable Portfolio Standards (RPS) ; 20% goal for production in 2010, 33% in 2020.
- Long term: Improvement of infrastructures and development of biofuels to replace conventional energy sources used in thermal Power plants (oil and coal.)

2.5.2. Transportation

The Energy Action Plan II on transportations stems from the preliminary work realized for the « State Alternative Fuel Plan » in September 2005 by the « California Energy Commission » (CEC).

- Reduce California's dependence on oil.
- Preserve the environment (air, water, forests) and health of Californians.
- Fight against climate change by decreasing CO2 emissions.

In order to reach its goals, the CEC combines regulation, incentives, private investments and technological progress in a five-tier strategy (from short to long term)

- Develop incorporation of biofuels (Low Carbon Fuel Standard)
- Improve standards on vehicles efficiency (Miles/Gallon – amelioration of the federal law CAFE)
- Development of niche markets for biofuels, public and private fleets (AB-118)
- Favor the emergence of hybrid technologies (AB – 118)
- Favor responsible urbanism (Senate Bill 375)

2.6. AB-32: a law to thrust federal action.

- In 2006, AB-32 was ratified after an agreement was reached between the Democrats Pavley (Assembly Man), Nuñez (Speaker of the Assembly) and Perata (Senate President) and the Republican Schwarzenegger (Governor). This law is the legislative framework within which EAP II will develop.
 - o The level of GHG emissions in California must not exceed the 1990 level.
 - o The Air Resources Board (ARB) manages and monitors GHG emissions.
 - o Regulation of GHG emissions is put into place (possibility of creation of a Cap-and-Trade market)
 - o Operational unraveling of the regulation by 2012.

- Immediate actions to reduce GHG emissions are published (« Discrete Early Actions »).
- Elaboration of regulation tools for 01/01/2008
- Planning and implementation of the law ("Scoping Plan) for 01/01/2009
- The law does not provide solutions and does not rely on technical or economic analyses. The objective here is then to frame through parliamentary economic and public debates around a definite objective and with active participation for all stakeholders.
- ARB, by fixing priorities on the energy sector, the individual transportation and the urbanization of buildings, enters federal domain. As a result, the success of this approach will largely depend on the position of the next president and his or her administration (2008.) All actors anticipate a strong federal engagement in favor of sustainable development, whoever wins.
- California then thinks in advance on the debate that will take place on future federal laws, by preparing itself on:
 - Demonstrating the possible conciliation of environment and economy.
 - Playing an opinion leader role on this issues
 - Concentrating the future economy of green techs on its territory.
- Nevertheless, some economists contend that to reach the objectives set by AB32 will lead to a 50% increase in the price of electricity. This increase could spill over the political board, creating an unfavorable political context, as well as a risk of outsourcing (negative effect on the economy: "Leakage" both through increased importation of cheaper thermal electricity from the outside as well as delocalization of firms.)

2.7. Senate Bill 375: towards responsible urbanism

Smart Growth & Land Use Planning is a real stake for California, mainly because of its demographic growth, (2030: 60 million inhabitants, 52% new buildings still remain to be built).

- Improve and standardize energy efficiency of buildings (e.g. « Net Zero Energy Buildings »)
- urban zones made denser rather than spread
- Develop efficient common transportation networks.
- Adapt the legislations, especially in terms of the repartition of commercial and residential areas.

Such measures could save 45% of the field (« blueprint planning ») and 30% of movements by 2020.

2.8. A particularly favorable ecosystem for the emergence of a new energy model.

- A positive political context (see above) relying on:
 - People's will
 - Conviction that the new energy model will be profitable.
- Highly performing Research centers :
 - Cash rich. Money stemming from the State of California, the Department of Energy, and private firms (e.g. BP.) This helps them to have a long-term vision (10 years) on their programs.
 - Gathering on a same location of diverse competences and exceptional personalities (e.g. Nobel Prizes recipient in physics) allowing them to study varied and complementary fields.
 - Permitting the multiplicity of scientific approaches (think outside the box")
- Flow of available capitals to invest in « Clean Techs » : Venture Capitalists, Business Angels and industrial groups invest either in research or in start-ups:
 - « high risk / high rewards » notion for firms that will offer profitable, clean and sustainable services, whatever the sector (automobile, buildings, energy)
 - Investment rate of 30% yield considered as satisfying.
 - \$2,7 billion invested in 2007 in « Clean Techs by the VCs.