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G. Michael McGraw
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Ms. Mary Nichols
Chairperson
California Air Resources Board
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

Re: Comments of Occidental Petroleum on the ARB Draft Scoping Plan and Appendices

Dear Ms. Nichols,

Occidental Petroleum Corporation ("Occidental") is a Los Angeles-based oil and gas exploration and production company with operations in the United States, the Middle East, North Africa and Latin America. Sixty-three percent of Occidental's 2007 total oil and gas production occurred in the United States, primarily in the states of California, Texas, New Mexico, and Kansas. Seventy-five percent of our proved reserves are located in the United States. Occidental is the No. 1 natural gas producer and third-largest oil producer in California, where net daily production averaged 126,000 barrels of oil equivalent in 2007.

Occidental respectfully submits the following comments on the California Air Resources Board ("ARB") Draft Scoping Plan and Appendices issued in June and July 2008:

Carbon Capture and Storage ("CCS")
AB 32 specifically directs the Draft Scoping Plan to include carbon capture and storage as a key element to meet California's greenhouse gas reduction goals. However, the Draft Scoping Plan offers little substantive direction on the deployment of CCS technology within the State. We believe that this is a missed opportunity.

Many organizations are now looking at the underground storage of carbon dioxide ("CO2") as an approach to controlling greenhouse gas emissions. The use of CO2 for enhanced oil recovery ("EOR") can provide the dual benefit of increasing oil production and extending the life of existing oil fields while simultaneously reducing the atmospheric release of anthropogenic greenhouse gases. The 2005 special report sponsored by the Intergovernmental Panel on Climate Change on CO2 capture and storage strongly endorsed EOR-driven CCS, saying that it can provide a substantial technical head start on proving the concept of geologic storage of CO2 at commercial scale. Occidental concurs.

In our Permian Basin operations in West Texas and New Mexico, CO2 has been used to enhance oil recovery for over 30 years. Since that time, Occidental has become the largest CO2-driven EOR operator

in the world, injecting approximately 500 billion cubic feet per year of new and recycled CO2. By using this technique, along with other new technologies, we have been able to substantially increase the productivity and lengthen the life of existing oil fields.

The vast majority of CO2 used in our EOR operations comes from naturally-occurring underground formations or is purchased as a commodity from third parties. We could easily substitute anthropogenic sources of CO2 – those captured from electric utilities, refineries and other large sources – if the captured CO2 were delivered to our producing fields at competitive prices. We believe the key challenges to using man-made CO2 in EOR operations are the cost of the technology to capture CO2 from industrial and power generation sources and the cost of building the infrastructure to transport the CO2 to an injection site and compress it to the pressure that allows it to be injected into an oil reservoir for enhanced recovery.

In California, incentives and policies to expedite building CO2 pipelines and to offset the cost of adding equipment to capture and compress emissions containing CO2 are necessary to bridge the cost barrier to anthropogenic CO2 EOR. Also, since natural CO2 supplies are not available near most California oil fields that are amenable to CO2 flooding, consideration should be given to developing policies and incentives that encourage locating new industrial operations and power generation with large CO2 emissions near such oil and gas reservoirs. The utilization of these man-made CO2 sources would enable more widespread application of CO2 EOR to increase in-state oil supplies.

Industry experience with the use of CO2 for enhanced oil recovery provides technical information and demonstrated results for long-term CO2 sequestration. CO2 EOR technology can be the gateway to future large-scale carbon sequestration operations outside of the EOR context. For example, CO2 EOR experience is directly applicable to dedicated CO2 storage in depleted oil and gas reservoirs. The industry's 30-year history of using CO2 for EOR provides evidence that CO2 can be safely captured, transported and injected in large quantities, and should allay concerns about long-term storage in oil and gas reservoirs and other geologic formations.

While storing man-made CO2 in oil and gas reservoirs and other underground formations is not the only option for reducing greenhouse gas emissions, it is an important, commercially-viable option that can be rapidly and economically implemented to accomplish this objective. CO2-driven EOR presents the substantial additional benefit of increasing domestic oil and gas production. Occidental believes the Draft Scoping Plan should incentivize the use of CCS (beginning with CO2-driven EOR) and remove any permitting, regulatory, legal, policy or other barriers that may hinder or prevent its deployment in California.

Oil and Gas Production Sector

The Oil and Gas Production sector is identified as having potential emission reductions on the order of 1.5-2.2 million metric tons per year of CO2 equivalents. According to the Draft Scoping Plan, the CO2-reduction measures under consideration would include: repowering, retrofitting, replacing or repairing existing equipment; installing new combined heat and power ("CHP") facilities; electrifying equipment; using monitoring equipment to detect leaks; and possibly employing CO2 injection to enhance oil recovery.

Occidental believes the Draft Scoping Plan overestimates the potential for additional greenhouse gas emission reductions from the Oil and Gas Production sector. Considering the maturity of California fields, most opportunities for equipment replacement or other efforts to improve operational and energy efficiency have likely been implemented. For example, Occidental has already aggressively pursued electrification of equipment, including the widespread use of electric pumps for its production wells. Moreover, greenhouse gas emissions from our oil and gas production equipment are already very low

because of the incidental benefit from other regulatory controls, such as, for example, those requiring lower NOx emissions. In addition, as a member of U.S. EPA's voluntary Natural Gas Star program, Occidental understands the environmental and economic benefits of voluntarily reducing methane emission from its oil and gas operations. Occidental's California operations have:

- deployed advanced technology, such as pneumatic devices, vapor recovery systems, and enhanced Inspection and Maintenance programs with certified leak detection equipment;
- eliminated unnecessary equipment, thus reducing the potential for fugitive emissions;
- used sophisticated emission estimating techniques to determine further emission reduction opportunities;
- submitted verified greenhouse gas emission reports as members of the California Climate Action Registry; and
- since 1990, prevented release of an estimated 12.6 billion cubic feet of methane (equivalent to about 5 million metric tons of CO2 equivalent emissions).

Finally, with respect to boiler and steam generator replacement, Occidental's experience is that such projects often represent a significant capital expenditure. Decisions to pursue these types of projects rest on economic payback periods, which for oil and gas operations are much shorter than those found in conventional manufacturing operations due to the natural production decline curve of an oil and gas reservoir.

It is difficult to imagine how there can be many additional cost-effective equipment replacements or other operational and energy efficiency measures that could achieve a significant reduction in greenhouse gas emissions from the oil and gas sector, even considering today's price environment. For this reason, CCS (beginning with CO2-driven EOR) is an important option for the oil and gas production sector to meet the potential emission reductions identified in the Draft Scoping Plan.

Combined Heat and Power

Occidental operates two CHP facilities with nameplate capacity of over 100 MW at oil and gas production operations in California. In addition we rely on other CHP facilities to provide steam for our heavy oil production operations in Kern County. We agree that CHP plays an important role in the State's energy infrastructure and concur that it has the potential to be an even more significant contributor in achieving the State's GHG emission reduction goals.

As the Draft Scoping Plan has identified, there are many challenging market barriers (e.g., departing load charges, lack of contracts, and resistance from utilities) faced by CHP operators and developers that limit the State from realizing the emission reduction potential of CHP. Occidental believes the ARB can help promote consideration of CHP as a viable GHG reduction measure. In particular, Occidental supports the recommendations of the Energy Producers and Users Coalition, outlined in its August 11, 2008 letter, for addressing these barriers to encourage - but not mandate - further deployment of CHP technology.

General Comments

Regarding other aspects of the Draft Scoping Plan, Occidental supports the recommendations of the Western States Petroleum Association, as outlined in its August 1, 2008 letter. In particular, we reinforce the following comments:

- Minimize auctions – Occidental supports the use of well-designed, broadly applied market-based mechanisms (such as a cap and trade program) - instead of command and control regulation - to help reduce the cost of greenhouse gas reductions. We concur with WSPA's position that any cap and trade program should not initially use auctioning of emission allowances as this will disadvantage industries located within California. Recommended instead is a phased-in approach,

one which uses a reasonably set compliance period where the allocation methodology (along with the other factors) is reviewed and reassessed as AB 32 implementation progresses.

- Offsets – We support inclusion of a robust offsets program, without geographic or quantity limitations, that links to regional, federal and international markets.
- Periodic review – AB 32 establishes a mandatory five year review and update that will facilitate the early identification and implementation of needed course corrections. We urge the ARB to include tracking mechanisms or early indicators that will identify and disclose the effect of the plan on energy supply and its impact on the State's economy.

Respectfully,

M. McGraw
Sr. Director, State Government Affairs