## RE: Cap-and-Trade Auction Proceeds Investment Plan

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1) **Provide a Framework** for Investing Cap-and-Trade Auction Proceeds
2) **Report on ROI** for each Investment
3) **Balance ñDirect" and "Indirect" Investments** based on ROI effectiveness, *and* economic enhancement of communities of opportunity

**Provide a Framework for Investing**

Given the financial and environmental importance and large scale investments required to reduce GHG induced global warming, a framework for crafting an ongoing investment plan seems essential. Since GHG build up is caused from four main sources:

1) Fossil fuel combustion (releasing massive quantities of lithospheric carbon from coal, oil and natural gas, into the atmosphere)
2) Reduction of biospheric stored carbon (from deforestation and urbanization)
3) Excessive, inefficient energy use (for transport, electrical generation, heating and cooling)
4) Other high GHG compounds in the atmosphere (e.g. methane ($CH_4$), which is 23x more potent than $CO_2$, or $N_2O$ which is even more potent)

These structural causes of global warming provide a logical framework for the Auction Proceeds Investment Planning, that will address those specific causes. For each of the seven (7) sectors identified in the Draft Concept Paper (Figure 3, page 4), the strategies and programs to mitigate each of those GHG emission forecasted and achieve reduction goals (Fig. 4 &5) could be balanced between the four approaches indicated by the four structural causes. Specifically:

1) Switch to low-carbon energy production ï Switch from non-renewable carbon fossil fuels to renewable biogenic carbon fuels (biofuels), as well as increased use of solar and wind powered electrical energy.
2) Increase biospheric carbon storage by:
    a. Conserving fuel usage (as we switch to low carbon biofuels, above
    b. Growing more long term storage carbon (organic agriculture, urban forests, farming and functional/sustainable landscapes and natural forests)
    c. Store carbon in soils (compost and biochar) that will have a triple positive impact of:
        i. *conserving water* (90% of which is used to grow plants in California: 80% for agriculture, and 10% for landscapes)
        ii. *enhancing urban forest growth* (healthy, high carbon soils, provide the right natural environment for growing and maintaining sustainable agriculture, landscapes and urban forests)
        iii. *sequester carbon in the soil* (high carbon soil can retain massive amounts-100ûs tons per acre-of carbon, keeping it out of the atmosphere where it)

3) Efficiency Enhancements ï by using less energy for transportation, heating and cooling, lighting and manufacturing, each of the above investments will be leveraged many times over by cutting down the overall energy being used to continue building and maintaining a thriving economy.
4) Economic Manufacturing of Low GHG chemicals ï focus on the most potent ñhigh global warming potential (High GWP) compounds and either directly reduce their emissions (e.g. methane from landfills) and or fine alternatives chemicals for economic use.

These strategies can be shorthanded as: *"Building 1) low carbon fuels, 2) high carbon soils, and 3) highly efficient systems."* This now becomes a coherent and transparent investment strategy for the Cap and Trade funds.

So using this ñCap & Trade Auction Proceeds Investment Frameworkò, it could be summarized in something like the following table:

| GHG Emission Sector | GHG Mitigation Strategy (% investment) | | | | |
|---|---|---|---|---|---|
| | 1) Low Carbon Enegy (biofuels, solar, wind) | 2) Carbon Storage | 3) Efficiency Enhance-ments | 4) Low GHG Chemicals | Subtotal % (2020 Target) |
| **Transportation** | 15% | 10% | 10% | 0% | 35% |
| **Electricity Generation** | 10% | 5% | 5% | 0% | 20% |
| **Industrial** | 6% | 5% | 5% | 5% | 21% |
| **Commercial & Residential** | 3% | 2% | 3% | 1% | 9% |
| **Agriculture & Forestry** | 2% | 4% | 0% | 0% | 6% |
| **Recycling & Waste** | 1% | 1% | 0% | 0% | 2% |
| **High-GWP** | 0% | 0% | 0% | 7% | 7% |
| **Subtotal %:** | 37% | 27% | 23% | 13% | **100%** |

It should be clear that the percentage of the investments in each of the three main areas of GHG reductions, are not set in stone. Quite the contrary, as investments are made, and once the resulting performance of those investments is tracked (see below), the appropriate optimum portfolio of investments across all sectors in each mitigation strategy area can be determined for their effectiveness. With this feedback, further investments can be made with ever greater confidence.

## Report on ROI for Each Investment

Each of the above programmatic investments in specific GHG mitigation programs, should be judged for their GHG reduction effectiveness. That is, a "Return on Investment" (ROI) that determines the investment return in terms of GHGs mitigated per dollar of investment for each program.

This should be a standardized, and directly reported back to the stakeholders and the public for each program investment of the Auction Proceeds. In this way, the public will see which programs are providing;

1) The greatest bang for the buck (ROI) of auction proceed investments, and
2) How well each mitigation strategy program is working to reduce GHGs in each of the GHG emission sectors of interest.

An annual ROI report will provide transparency not only the fund managers, but also the policy makers, the general public, as well as the industry stakeholders in each of the GHG emission sectors who are working to reduce the GHG intensity of their particular sector.

## Balance Direct & Indirect Investments & Communities of Opportunity[1]

Lastly, there needs to be a transparent balance between direct investments and indirect investments. This is a matter of standard accounting that will be necessary to judge the program effectiveness. Examples of Direct vs. Indirect investment programs include, but certainly are not limited to:

Direct

- Biofuels production and use in vehicles
- Production and use of solar and wind energy
- Renewable energy used by factories
- Sequestering carbon by raising the organic content of landscape and agricultural soils

Indirect

- Conservation of energy (transportation fuels, heating and air conditioning)
- Building public transportation
- Planning neighborhoods and cities to require less transportation
- Telecommuting increases
- Building net-zero affordable housing

The ROI of both direct and indirect GHG mitigation programs, within each of the GHG emission sectors, will also be critical to compare the effectiveness of both classes of investments. In addition, to direct/indirect tracking, it will be required to track which investments are positively impacting and enhancing communities of opportunity. These will likely need to be tracked based on specific environmental and socioeconomic standards that can be used to determine a "socioeconomic ROI" for the affected communities. This must also be made transparent.

[1] "Communities of Opportunity" is a euphemism for "Disadvantaged Communities", the ones that CalEnviroScreen is designed to track.