

Key Findings from
*Is There a Relationship Between State Economic Performance and
Carbon Emissions Economic Intensity? A Cross-State Econometric Study*
(Abt Associates, January 28, 2005)

Prepared by
Kenneth A. Colburn
Center for Climate Solutions
May 10, 2005

In a study concluded in January 2005, the U.S. EPA Climate Protection Partnerships Division, State and Local Capacity Building Branch asked Abt Associates to consider four important questions:

1. How do changes in carbon intensity affect Gross State Product (GSP) per capita?
2. Conversely, how do changes in per capita GSP affect carbon intensity?
3. How do changes in carbon intensity, disaggregated by sector, affect economic performance?
4. Similarly, how do changes in sector-specific economic performance affect carbon intensity?

Simplifying somewhat for the sake of brevity, Abt found that:

1. (a) Carbon intensity is favorably and causally correlated to per capita GSP; states with lower carbon intensity have higher per capita GSP.
(b) Reductions in carbon intensity can be expected to increase per capita GSP.
2. (a) Per capita GSP is favorably and causally correlated to carbon intensity; states with higher per capita GSP tend to have lower carbon intensity.
(b) Increases in per capita GSP can be expected to decrease carbon intensity.

Taken together, the above two conclusions suggest that states can implement policies and programs that simultaneously increase per capita GSP and reduce carbon intensity.

3. (a) Residential sector carbon intensity is *unfavorably* and causally correlated to per capita GSP; *higher* residential carbon intensity tends to increase per capita GSP.
(b) Reductions in carbon intensity in the industrial, commercial, and personal transportation sectors are favorably and causally correlated to increased per capita GSP.
(c) State climate action policies and programs (e.g., energy efficiency, renewables, etc.) targeting the industrial, commercial, and personal

transportation sectors can be expected to increase their economic performance.

4. (a) In the residential sector, increased per capita GSP is *unfavorably* and causally correlated to carbon intensity; higher per capita GSP tends to increase residential carbon intensity.
- (b) Within the industrial and commercial sectors, increased economic performance is favorably and causally correlated to reduced carbon intensity.
- (c) State economic policies and programs targeting the industrial and commercial sectors are likely to reduce the carbon intensity of these sectors.

Taken together, the above two conclusions suggest that by targeting policies and programs to the industrial, commercial, and personal transportation sectors, states should be able to simultaneously improve the economic performance of these sectors and reduce their carbon intensity.

It is perhaps not surprising that the residential sector departs from the encouraging linkage found between economic and carbon intensity in other sectors. As consumers, we often use higher incomes to purchase more carbon-emitting goods (e.g., second homes, etc.), and these consumer purchases often lead to enhanced economic performance in turn.

In sum, while the Abt study opens several promising new lines of inquiry to further refine the linkage between economic performance and carbon intensity, opportunities clearly exist today to mitigate greenhouse gas emissions in a fashion that simultaneously enhances per capita GSP.