

F-GHG Emissions Reduction Efforts: Flat Panel Display Supplier Profiles

Summary

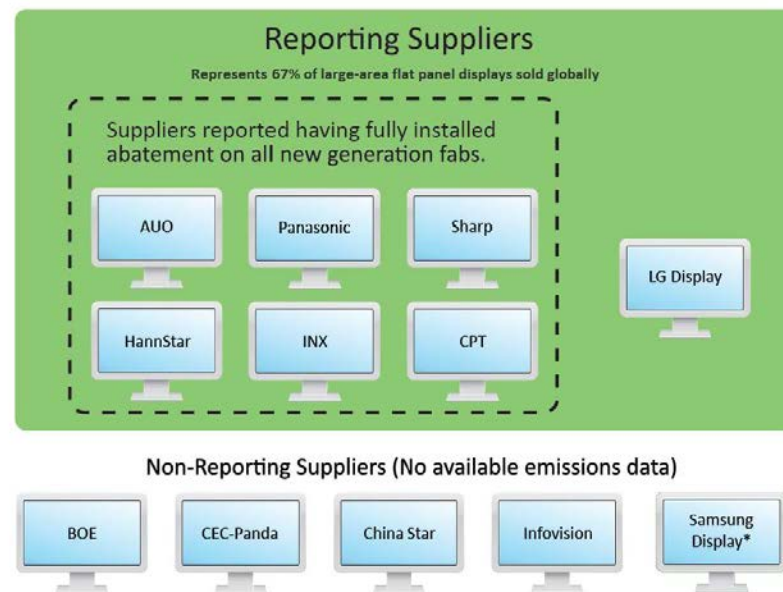
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The Supplier Profiles (PDF) detail the efforts of large-area flat panel suppliers to reduce their F-GHG emissions in manufacturing across key areas. They cover current mitigation measures, future reduction goals, and public disclosure efforts. They also highlight whether emissions reduction efforts address all F-GHGs used in all manufacturing processes and the extent to which emissions abatement technologies are installed on newer generation fabs (i.e. those that make today's large-area panels used for products such as TVs and computer monitors). This summary reflects information, which was assembled from public sources and the suppliers themselves, on F-GHG emissions for calendar year or fiscal year 2012, depending on the supplier's reporting cycle. Public sources of information include suppliers' responses to the annual Carbon Disclosure Project Investor Questionnaire and annual sustainability reports. The twelve global suppliers covered produce 99% of all large-area flat panel displays sold globally.

Beginning in 2013, brands and retailers Walmart, Dell, HP, Lenovo, Best Buy, and Acer (who joined in 2014) took an important step to foster further voluntary F-GHG reductions among their LCD suppliers. These companies submitted to their suppliers a proposal calling for them to 1) develop a standard method for measuring and recording F-GHG emissions for the industry, 2) establish a voluntary long-term F-GHG emissions reduction goal with public timelines for demonstrating progress, and 3) develop an annual progress report that can be shared with them and/or other supporting organizations.

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Information Reflects 2013 Data



*Samsung reported information in 2011 and 2012.

Data Assessment and Future Data Needs:

- An opportunity exists to standardize F-GHG emissions reporting so that each supplier provides the same information. Currently, suppliers report information on their F-GHG emissions and amount of reductions with some variability. For example, it is not clear if all suppliers are including NF₃ in reporting their total PFC emissions and reductions, as some suppliers report NF₃ emissions and reductions separately from their PFC emissions and reductions.
- F-GHG emissions decreases and increases appear to be tied to changes in production levels. Going forward, EPA is interested in understanding the extent to which F-GHG emission reductions result from the use of F-GHG reduction technologies or other reduction measures. More information of this kind would facilitate better highlighting of pro-active measures to reduced F-GHG emissions intensity.
- Some suppliers reported their emissions intensity per square meter of glass produced. Going forward, EPA is interested in learning more about the inputs that determine F-GHG emissions intensity.

Summary of Supplier Profiles:

This summary reflects information as it appears in each supplier's profile. In some cases, suppliers provided reasons for increases or decreases in annual F-GHG emissions from 2011 to 2012. Profiles will be updated as new information becomes available.

AU Optronics (AUO): AUO installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. The company reports having reduced their F-GHG emissions by approximately 9.34 million tons of CO₂e between 2003 and 2013, up from a 8.06 million ton reduction between 2003 and 2012.

BOE Technology: Information on F-GHG reduction efforts in flat panel manufacturing is still unknown, though general information on its broader GHG emissions management efforts is publicly available.

CEC-Panda: Information on F-GHG reduction efforts in flat panel manufacturing is still unknown.

ChinaStar: Information on F-GHG reduction efforts in flat panel manufacturing is still unknown.

Chunghwa Picture Tubes (CPT): CPT installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. In 2008, its base year, CPT's F-GHG emissions amounted to 505,000 tons of CO₂e. In 2013 emissions equaled 483,000 tons of CO₂e, a decrease from base year emissions, but an increase over F-GHG emissions in 2012.

HannStar: HannStar installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. HannStar reduced F-GHG emissions by approximately 1.33million tons of CO₂e from 2007-2012 and reduced F-GHG emissions by 89,000 tons of CO₂e in 2013.

Infovision: Information on F-GHG reduction efforts in flat panel manufacturing is still unknown.

INX (Innolux): INX installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. In 2013, INX's absolute F-GHG emissions of SF₆, PFCs, and HFCs decreased by 29,363 metric tons of CO₂e, or 5.7 percent, in comparison to emissions in 2012. INX's emissions intensity decreased from 0.008558 tons of CO₂e/m² in 2012 to 0.00738 tons of CO₂e/m² in 2013.

LG Display: LG Display has installed F-GHG abatement systems on all lines of chemical vapor deposition (CVD) tools and on three lines of etch tools in its newer generation fabs. Its reduction efforts target SF₆, PFCs, and NF₃ (LG Display does not use HFCs). Overall LG Display estimates that it reduced F-GHG emissions by 888,404 metric tons of CO₂e in 2013, in comparison to 1,825,238 tons reduced in 2012.

Panasonic: Panasonic Liquid Crystal Display (PLD) installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. In its 2013-2014 fiscal year, PLD decreased SF₆ emissions from 6,583 tons of CO₂e in FY 2012-2013 to 5,100 tons of CO₂e.

Samsung Display: Information on F-GHG reduction efforts in flat panel manufacturing is still unknown for 2013, though information Samsung Display's F-GHG emissions reductions for 2011 and part of 2012 are publicly available.

Sharp: Sharp installs abatement systems on all newer generation fabs, targeting SF₆, PFCs, HFCs and NF₃ in all etch and clean processes. In its 2013-2014 fiscal year, Sharp's F-GHG emissions increased by 12,000 tons of CO₂e