While the proposed action is expected to require a varying level of conversion costs, depending upon the specific actions taken, from the stakeholder groups as outlined above, the anticipated impact will be limited in duration (with the exception of the labor costs at coin terminals, which would be ongoing), scope (i.e., the small subset of the population represented by the stakeholders) and, depending on coins changed, intensity. Offsetting those negative financial impacts, however, are the direct financial benefits associated with United States Mint coin production that would be realized from the selection of any of the options for the 5-cent, dime, quarter dollar and half dollar coins. Indeed, certain options, such as nickel-plated 31157 or 302HQ stainless steel for the 5-cent coin, are expected to result in an annual production cost savings of over $11M over FY2011 production costs for the 5-cent coin. In addition, while not currently recommended, the Dura-White-plated zinc option for the 5-cent coin could save the United States Mint close to $52M over FY2011 costs. These are significant annual savings to the American taxpayer and these savings would be realized year after year.

Finally, while the financial impact to certain stakeholder groups could be relatively substantial in the short term, the CEQ regulations clearly state that "economic or social effects are not intended by themselves to require preparation of an environmental impact statement."

6.8 CARBONYL PROCESS

The carbonyl process is not part of the proposed action or any of the alternatives discussed in this EA, but it was briefly investigated during the course of this effort, so a concise summary of the process and the potential environmental impacts are included for reference.

The carbonyl process was invented in 1903 and deposits nickel, iron, cobalt and some other metals by a relatively low-temperature gaseous process; but also can extract these metals at near ambient temperatures. The carbonyl process exploits the ability of carbon monoxide (CO) to form compounds with many of the transition elements in Groups VIA to VIIIA of the Periodic Table of Elements. The process works particularly well for nickel and it is reversible. That is, nickel can be diffused from a substrate, or deposited onto a substrate depending upon processing temperature. The deposition system is approximately the size of a large oil delivery truck. To deposit nickel, a stream of nickel carbonyl flows in an enclosed chamber and the substrate to be deposited upon is heated to about 175 °C (347 °F). The nickel deposits on the surface releasing CO, which is recycled in a closed system.

Since the cost of the cupronickel coins has escalated sharply in recent decades, it was suggested that the carbonyl process be used to cost-effectively deposit nickel and nickel alloys on planchets of coins and to use the process for metal reclamation of worn coins or scrap. The process can coat nickel on any clean surface, so one issue would involve preparing a clean surface on the planchet or stamped coin. This typically would be done in a hydrogen-reducing atmosphere. The resulting coated coin would also need to be buffed to achieve the proper appearance.

While there are carbonyl reactors in operation, there are no known prototypes or commercial practices of using the carbonyl process to deposit nickel on substrates for use in the production of coins. As a result, feasibility studies and scale-up would be needed to assess and optimize the process for coins, define plant configuration and to minimize the processing and plant capital costs.

The potential benefits of the carbonyl process, other than its reversibility, include its relatively low operating costs and the ability to coat less expensive materials used in the core of coins.

From an environmental standpoint, however, the carbonyl process presents air emissions and worker health and safety issues. Both carbon monoxide and nickel carbonyl are regulated poisonous gases, so appropriate air pollution control equipment must be installed and more importantly, worker exposure assessments would need to be performed to determine the need for engineering controls and/or personal protective equipment to safeguard workers. Overall, extreme care must be exercised in building and operating carbonyl reactors.

The carbonyl process is currently commercially used by CVMR Corporation of Toronto, Ontario, Canada and Vale Metals in several nations including Canada, Germany, Great Britain and China.

6.9 CUMULATIVE IMPACTS

Cumulative impact is the collective effect on the environment that results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

US circulating coins are designed to be in circulation for 30 years. Historically, coin composition changes have occurred no more frequently than the 30-year time frame. While changes to circulating coins could occur on a more frequent basis in the future, the proposed action covered in this EA assumes a one-time change in the composition of the circulating coins produced by the United States Mint that will remain in circulation for 30 years. These compositional changes are expected to have environmental, health and safety, and financial benefits that increase over time. The potential reduction in nickel content for the 5-cent, dime, quarter dollar and half dollar coins would not only benefit United States Mint worker health, but US citizens nationwide that suffer from nickel allergies. Current annual coin production rates only amount to approximately 3% of the coins in circulation. So, while the full health benefits for United States Mint production line workers would be immediate for a change in the composition of coins, the benefit to Americans with nickel allergies would continue to increase for many years as the incumbent coins are replaced with the alternative versions.

The positive financial impacts of the proposed action will increase over time as well. The cost savings in coin production costs will be immediate, ongoing and will fluctuate slightly with raw materials costs. Even if non-seamless alternative coins are introduced, as the affected coin industry stakeholders replace or upgrade their respective equipment to accept the alternative coins, overall industry costs associated with the proposed action will decline as upgrades are completed. Once all impacted stakeholder groups have completed their upgrades, the net financial benefit to the US taxpayer will be fully realized.