



## PROJECT REGISTRATION FORM

<b>Project Number:</b> ATF-09-08	<b>Task Force:</b> Aluminum								
<b>Title of Project:</b> Development of Generic Computer Software for Automated Anode Effect Control									
<b>Lead Partner Country:</b> United States									
<b>Participating Partner Countries and Organizations:</b> China, Institute for Governance & Sustainable Development									
<b>Project Location</b> (Country, State/Province, City): <b>Multiple locations – China</b>									
<table style="width: 100%; border: none;"> <tr> <td colspan="2" style="padding: 5px;"><b>Project Manager Information</b></td> </tr> <tr> <td style="width: 50%; padding: 5px;"><b>Name:</b> Teresa Cordaro</td> <td style="width: 50%; padding: 5px;"><b>Phone:</b> 202-647-6900</td> </tr> <tr> <td style="padding: 5px;"><b>Organization:</b> US Department of State</td> <td style="padding: 5px;"><b>Fax:</b> 202-647-0191</td> </tr> <tr> <td style="padding: 5px;"><b>Address:</b> 2201 C Street N.W. Washington D.C. 20520</td> <td style="padding: 5px;"><b>Email:</b> CordaroTA@state.gov</td> </tr> </table>		<b>Project Manager Information</b>		<b>Name:</b> Teresa Cordaro	<b>Phone:</b> 202-647-6900	<b>Organization:</b> US Department of State	<b>Fax:</b> 202-647-0191	<b>Address:</b> 2201 C Street N.W. Washington D.C. 20520	<b>Email:</b> CordaroTA@state.gov
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<b>Project Start Date:</b> 9/13/2008	<b>Proposed Project End Date:</b> 12/31/2011								
<p><b>Description of Project:</b></p> <p>China is the largest producer of primary aluminum, with approximately 32% of the world total production and 33% of world capacity (USGS 2008). Their cell technology is Prebake using domestically manufactured design, predominately GAMI or SAMI design. The production of primary aluminum results in intermittent process-related emissions of two perfluorocarbons (PFCs): perfluoromethane (CF<sub>4</sub>) and perfluoroethane (C<sub>2</sub>F<sub>6</sub>). PFCs have an estimated atmospheric lifetime of 10,000–50,000 years, and an estimated global warming potential (GWP) of 6,500 and 9,200 times that of carbon dioxide (CO<sub>2</sub>) (IPCC, 2007).</p> <p>Based on feedback received through the Asia Pacific Partnership (APP) Aluminum Task Force PFC Management Project, discussions with the Chinese Nonferrous Metals Industry Association (CNIA) and company representatives, virtually all smelters – over 80 – in China rely on “manual kills” to stop anode effects. Successfully upgrading computer processes to incorporate an anode effect kill strategy at the 30 smelters addressed in this proposal will reduce PFC emissions an estimated 22 to 29% below baselines emissions, although there is no official estimate of PFC emissions from primary aluminum production in China. This will result in PFC emissions reductions of 1.1 to 2.1 MMTCO<sub>2</sub>-eq.</p> <p>The Institute for Governance and Sustainable Development (IGSD) proposes to eliminate 1.1 to 2.1 MMTCO<sub>2</sub>-eq emissions of perfluorocarbons (PFCs) by upgrading up to 30 of approximately 80 primary aluminum smelters in China from manual anode effect kill to automated kill sequence. The IGSD project complements the on-going work of the Asia Pacific Partnership (APP) Aluminum Task Force PFC Management Project and will result in highly cost-effective, near-term PFC emission reductions. In addition, the project will build capacity within industry,</p>									



academia, government and the national aluminum trade association in China to speed the transition of the remaining 50 plus smelters in China beyond those targeted by this project and to provide training in the importance of PFC emissions management and other cost-effective methods to reduce PFC emissions. It will improve efficiency by reducing waste, and thus promote more sustainable development, and will capture “lessons learned.”

**Project Objectives:** The goal of this project is to upgrade up to 30 of approximately 80 primary aluminum smelters in China from manual anode effect kill to automated kill sequence, and in addition, build capacity within industry, academia, government and the national aluminum trade association in China to speed the transition of the remaining 50 plus smelters beyond those targeted by this project and to provide training in the importance of PFC emissions management and other cost-effective methods to reduce PFC emissions.

**Project Deliverables:**

This project will result in highly cost-effective, near-term PFC emission reductions. Through adoption and optimization of an automated anode effect kill sequence at up to 30 facilities in China, we estimate that PFC emissions from primary aluminum production in China will be reduced by 22 to 29% from baseline emissions and result in an emission reduction of approximately 1.1 to 2.1 MMTCO<sub>2</sub>e. The reduction assumes mitigation at 30–35% of total production capacity in China and that baseline emissions result from anode effect frequency (AEF) that is at the median for global point feed prebake technology and that anode effect duration (AED) is between the median and 75% of the 2006 global benchmark.

**Project Milestones:**

The period of performance will be from date of award to three (3) years hence.

The following indicators can be used to evaluate this project:

- Reduction of PFC emissions from baseline of manual anode effect kill versus fully optimized automated kill.
- Total number of facilities that have been upgraded.
- The percent of production capacity in China that has automated versus manual anode effect kill.
- Anode Effect Duration (AED) of facilities before and after transition compared to the International Aluminium Institute Annual Benchmark survey for anode effect frequency and duration.
- Number of industry and academic experts trained in anode effect management.

**Resources:** US \$1,683,000

**Other Information:**