

Featured Solutions

Practical Solutions Drawn From the CSD Matrix

Categories: ENERGY ACCESS, INDUSTRIAL DEVELOPMENT

Featured Solution # 1: Supporting Energy Small and Medium-Sized Enterprises (SMEs)

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Supporting Energy SMEs</p> <p>Providing financial and technical assistance to small and medium-sized sustainable energy enterprises that use clean, efficient, and renewable energy technologies</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> Africa Rural Energy Enterprise Development Central America – Clean Energy Financing in Central America 	<ul style="list-style-type: none"> As a result of UNEP’s Africa Rural Energy Enterprise Development (AREED), more than 224,000 people in 44,000 households now have access to cleaner forms of energy. Also through AREED, nearly \$2 million has been invested in 31 enterprises. As of the end of 2005, 69% of these investments were current or paid back in full. Since 2000, FENERCA (Financiamiento de Empresas de Energía Renovable en Centro America) has supported 112 renewable energy enterprises, provided 108,953 people with access to new clean energy services, and mobilized \$37m in financing. 	<ul style="list-style-type: none"> The Global Village Energy Partnership plans to set up three Regional Energy Access Funds for SMEs – two in Africa and one in Asia. If the funds are fully disbursed by 2009 and 2012, the targets are to assist: <ul style="list-style-type: none"> 2,000 enterprises (benefiting 1,000,000 people) by 2009 and 7,000 enterprises (benefiting 4,500,000 people) by 2012. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> GVEP: Global Village Energy Partnership (www.gvep.org) AREED: Africa Rural Energy Enterprise Development (www.areed.org)



Category: ENERGY ACCESS

Featured Solution # 2: Utility-community Intermediaries for Electricity Service Delivery

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Utility-community intermediaries for Electricity Service Delivery</p> <p>Innovative electrification programs that involve stakeholders as intermediaries between service providers and end users</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> India, Ahmedabad – Slum Electrification Local Capacity Development for Better Energy Governance -- the Caucasus Environmental NGO Network 	<ul style="list-style-type: none"> 820 households in Ahmedabad, India were converted from illegal to legal service, reducing theft and improving utility revenues, using NGOs to help slum dwellers apply for proper connections. The utility has since expanded the program to more than 115,000 households throughout the city's slum areas. In Georgia, the Caucasus Environmental NGO Network created six Energy Services Consumers Associations (ESCAs) that have attended to requests from 1,500 families, helped over 60 families apply for state subsidies, and successfully advocated for the rehabilitation of street lighting in all districts. 	<ul style="list-style-type: none"> Pilots are now being developed and implemented in Mumbai, India and Sao Paulo, Brazil to provide legal and regular service to over 50,000 slum households. The Brazil project was launched in September '06 and the India project will begin in April '07. These programs will be replicated across Brazil and India. Discussions are also underway to replicate and adapt these program models to other countries, such as Liberia. These projects include substantial leverage including a public-private alliance with the International Copper Association and a \$1.5m grant from the World Bank's Global Partnership for Output-based Aid (GPOBA). <p><u>Organizations Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> U.S. Agency for International Development World Bank UN-Habitat



Category: ENERGY EFFICIENCY

Featured Solution # 3: Standards and Labels

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Standards and Labels</p> <p>Minimum energy performance standards and energy efficiency endorsement labels and energy information labels for residential, commercial, and industrial equipment and lighting.</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> • Energy Star Product Labeling • Collaborative Labeling and Appliance Standards Program (CLASP) • Australia – Improving Appliance Energy Efficiency • Poland – Energy Efficient Building Codes • China – Energy Efficient Refrigerators 	<ul style="list-style-type: none"> • In 2005 alone, the ENERGY STAR label helped Americans prevent greenhouse gas emissions equivalent to those from 23 million cars and save \$12 billion. • Since 1999, CLASP has assisted with the implementation of 21 standards or labels. By 2014, energy savings from these standards and labeling schemes are estimated to reach above 200 TWh and save 250 megatonnes of CO₂ emissions. 	<ul style="list-style-type: none"> • U.S. assistance has supported standards and labeling programs in China, India, Brazil, South Africa, Ghana, and Mexico. • The U.S. EPA and the CSC (China's labeling program) plan to work in tandem to develop harmonized requirements for one or more products in in 2007-2008. • Revised Energy Star specifications for computers will be effective July 2007 and used in several countries. These specifications could save U.S. homes and businesses \$1.2 billion in energy costs over the next 5 years. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> • CLASP: Collaborative Labeling and Appliance Standards Program (www.clasponline.org) • Energy Star (www.energystar.gov)

For more information on this and other energy efficiency solutions, please visit these events:
Energy Efficiency Solutions Showcase
 (hosted by the U.S. Delegation)
 Tuesday, 27 Feb -- 1:15-2:45 p.m.
 Conference Room 7

Importance of Energy Efficiency and Renewable Energy for Development (hosted by REEEP)
 Thursday, 1 Mar-- 1:15-2:45 p.m.
 Conference Room 4



Category: ENERGY EFFICIENCY

Featured Solution # 4: Public Sector Energy Efficiency Initiatives

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

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<p>Public Sector Efficiency Initiatives Focusing public sector procurement, investment, and operating practices on energy-efficient buildings, products, and services in order to deliver immediate benefits and create a buyer-led market "pull" for energy efficient products and services.</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> Promoting an Energy Efficient Public Sector Watery: Taking Advantage of Untapped Energy and Water Efficiency Opportunities in Municipal Water Systems Bulgaria – Credit Facility for Municipal Energy Efficiency German Energy Agency (dena) Hungary: Public Sector Energy Efficiency Programme Belgium-FEDESCO-Federal Energy Service Company 	<ul style="list-style-type: none"> Efforts to improve efficiency of local water utilities in India, Mexico, Brazil and South Africa as well as energy efficiency purchasing in municipalities in Mexico have produced more than 25 GWh of annual energy savings, the greenhouse gas emissions equivalent of taking 42,000 cars off of the road for a year. Estimated technical potential for savings in year 10 (2015) of China's government efficiency procurement program is up to 4.65 terawatt-hours (TWh), resulting in monetary savings of ¥2.9 billion (US\$353 million). Through the Bulgaria financing project, \$10 million in loans were issued for 33 municipal and industrial projects, saving 400 GWh and 530,000 tons of CO₂. 	<ul style="list-style-type: none"> These programs continue to be expanded in India, Mexico, Brazil, and China this year. A new public sector energy-efficient purchasing program is being initiated in Chile Executive Order 13423, signed January 24, 2007 by President Bush, requires U.S. Government agencies to reduce their energy intensity 30% by 2015. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> PEPS: Promoting an Energy-Efficient Public Sector (www.pepsonline.org) Watery (http://www.watery.org/) REEEP: Renewable Energy and Energy Efficiency Partnership (www.reeep.org)

For more information on this and other energy efficiency solutions, please visit these events:
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Category: OUTDOOR AIR POLLUTION

Featured Solution # 5: Leaded Gas Elimination Efforts

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Leaded gas elimination efforts</p> <p>A variety of efforts to reduce the use of leaded gasoline such as those facilitated by the Partnership for Clean Fuels and Vehicles</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> • Sub-Saharan Africa – Initiative for phase-out of leaded gasoline • Indonesia – Lead Information Center 	<ul style="list-style-type: none"> • With the assistance of the Partnership for Clean Fuels and Vehicles and the World Bank, all 49 Sub-Saharan African countries stopped refining and importing leaded gasoline by the end of 2005, positively affecting 733 million people in Sub-Saharan Africa. 	<ul style="list-style-type: none"> • Additional countries to eliminate lead by the end of 2007 • Global elimination of lead from gasoline by end of 2008. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> • PCFV: Partnership for Clean Fuels and Vehicles (http://www.unep.org/pcfvl/)



Category: INDOOR AIR POLLUTION

Featured Solution # 6: Integrated Cookstove Pollution Reduction Programs

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Integrated cookstove pollution reduction programs</p> <p>Comprehensive efforts combining education, technology design, alternative fuels, indoor air pollution and fuel use reduction monitoring, and market development to disseminate healthier cooking/heating practices</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> Integrated Program Models for Cleaner Cooking in Bangladesh and Peru Pakistan – Fuel-Efficient Smokeless Stoves China and India – Searching for sustainable solutions to indoor air pollution 	<ul style="list-style-type: none"> The 10 U.S. Government-funded Partnership for Clean Indoor Air pilot projects have resulted in 278,500 people with reduced exposure to indoor air pollution from home cooking/heating. In addition, 71,300 households have adopted improved cooking and heating practices in the last 2 years. At the integrated cookstove program in Peru, most houses with improved cooking stoves experienced a 75% drop in indoor CO and particulate concentrations. 	<ul style="list-style-type: none"> Lessons learned from the 10 PCIA pilot projects and other programs will be shared at the 3rd Biennial Partnership for Clean Indoor Air Forum in India in March and other PCIA events year round. Following the completion of the integrated cookstove program in Peru, PAHO and the Peruvian Government are discussing ways to replicate elements of the program in other parts of the country. GTZ is also exploring replication of the micro-credit scheme in its Bolivia program. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> PCIA: Partnership for Clean Indoor Air (www.pciaonline.org)

For more information on this and other indoor air pollution solutions, please visit this event:
Side Event on Indoor Air Pollution: Healthy and Affordable Household Energy – Let’s Scale Up What Works! (Organized by WHO, GTZ, Practical Action, U.S. EPA, and PCIA)
 Tuesday, 27 Feb – 6:30-8 p.m.
 German House (1st Avenue @ 49th Street)



Category: RENEWABLE ENERGY

Featured Solution # 7: Innovative Financing Models for Renewable Energy

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Innovative financing models for renewable energy</p> <p>A suite of financing models that support, leverage, and catalyze standard bank financing mechanisms (e.g. loan guarantees, mezzanine financing, rural cooperatives, etc.)</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> • Central America – Clean Energy Financing in Central America • JREC Patient Capital Initiative • India Renewable Energy Programme 	<ul style="list-style-type: none"> • Primarily through farmer-owned and other rural investment cooperatives, stimulated by U.S. Department of Agriculture loan guarantees and partial-cost grants, 117 large-scale wind turbines (totaling 1.3 billion kWh per year), 102 anaerobic digesters for methane-to-electricity and/or heat (totaling 0.36 billion kWh per year), and 176 facilities for the production of liquid biofuels for transportation have been installed since 2001. • The new mezzanine fund for renewable energy in Central America (CAREC) has financed more than \$29m in projects to date. • Rural electrification cooperatives, under a program that started in 1936, have been responsible for providing access to electricity for over 70% of the area covered by electrical distribution lines in the U.S. and produce 10% of the nation's electricity. 	<ul style="list-style-type: none"> • CAREC will support over \$100 million in renewable energy and energy efficiency projects over the next 5 years. • Similar types of funding mechanisms are also being considered for Asia and Sub-Saharan Africa. <p><u>Organizations Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> • REEEP: Renewable Energy and Energy Efficiency Partnership • World Bank • E+Co • NRECA: National Rural Electric Cooperative Association



Category: RENEWABLE ENERGY

Featured Solution # 8: Resource Assessments for Renewable Energy Applications

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Resource assessments for renewable energy applications</p> <p>Empirical data and analytical tools such as solar and wind mapping to increase the rate of renewable energy adoption.</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> Sri Lanka and Maldives – Renewable Resources Assessment for Stimulating Investment Solar and Wind Resource Assessment 	<ul style="list-style-type: none"> Wind mapping facilitated the consideration of a 30MW wind farm by the Ceylon Electricity Board in Sri Lanka. When complete, this will represent a 10-fold increase in installed wind capacity in Sri Lanka. By using software modeling tools, a group of island communities in Chile secured a \$40 million loan to provide rural electrification throughout the Archipelago. Solar and Wind Energy Resource Assessment (SWERA) outputs facilitated Nicaragua's Decree on Promotion of Wind Energy of Nicaragua 2004, giving wind generation "first dispatch" priority over other generation options on the national grid. Elements of the Chinese Renewable Energy Law are based on biomass and wind resources assessment data and analysis 	<ul style="list-style-type: none"> Renewable energy resource assessments are currently being conducted in Afghanistan and Pakistan and are scheduled to be concluded in 2007. SWERA (the Solar and Wind Energy Resource Assessment) could be scaled up to include additional countries and technologies Develop in-country capacity to carry out resource assessment in the developing world. <p><u>Organizations Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> SWERA: Solar and Wind Energy Resource Assessment (swera.unep.net) U.S. Agency for International Development U.S. Department of Energy National Renewable Energy Laboratory (USA) National Aeronautics and Space Administration (USA) Risø National Laboratory (Denmark) DLR – German Aerospace Center



Categories: ENERGY ACCESS, CLIMATE CHANGE

Featured Solution # 9: Methane Capture and Use

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

DESCRIPTION OF THIS SOLUTION	FEATURED RESULTS OF THIS SOLUTION	NEXT STEPS: HOW CAN THIS SOLUTION BE SCALED UP OR REPLICATED?
<p>Methane Capture and Use</p> <p>Cost-effective, near-term methane recovery from agriculture, coal mines, landfills, and oil and gas systems provides a clean energy source for producing electricity, heat, or combined heat and power while at the same reducing greenhouse gas emissions.</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> • Methane to Markets Partnership • U.S. Environmental Protection Agency's Voluntary Methane Program 	<ul style="list-style-type: none"> • In the year 2005, nearly 400 operational landfill gas energy projects in the United States prevented the release of 19 million metric tons of carbon equivalent (MMTCE), the carbon equivalent of removing the emissions from 13.3 million vehicles on the road or planting 19 million acres of forest for one year. • Two pilot projects launched by Petróleos Mexicanos (PEMEX) in México (in cooperation with SEMARNAT, USEPA, and USAID) have the potential to reduce methane emissions by approximately 120,000 MTCO₂E per year. • A Ukrainian coal mine safety and emission reduction project is expected to reduce emissions by an estimated 100,000 MTCO₂E per year. 	<ul style="list-style-type: none"> • The world's largest coal mine methane project – a 120 MW combined heat and power plant – is being built in Shanxi Province, China. • The U.S. has provided seed funding for landfill gas projects in Mexico and Brazil that are expected to reduce emissions by 45,000 and 500,000 metric tons of CO₂ equivalent (MTCO₂E) per year, respectively. • The Methane to Markets Partnership Expo (Oct 30-Nov 1, 2007 in Beijing, China) is the premier international forum for promoting methane recovery and use project opportunities and technologies. <p><u>Partnerships Working to Replicate This Solution</u></p> <ul style="list-style-type: none"> • M2M: Methane to Markets Partnership (www.methanetomarkets.org) : M2M Partners and project network members continually collaborate to promote projects and activities.



Categories: ENERGY ACCESS, CLIMATE CHANGE

Featured Solution # 10: Nuclear Power in the 21st Century

Background: The 120+ case studies collected in the first 21 months of the 2005-2007 CSD Implementation Cycle highlight a number of practical and proven solutions to the energy challenge, one of which is summarized below. The challenge for the remaining three months of the CSD Cycle will be to identify ways to replicate and/or scale up this solution and others.

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<p>Nuclear Power in the 21st Century</p> <p>Expanded use of safe, economical, carbon-free nuclear energy, well-suited to developing nations, to help meet growing global electricity demand and continue to further reduce the production of green house gas emissions.</p> <p><u>Case studies from CSD Matrix:</u></p> <ul style="list-style-type: none"> The Generation IV International Forum 	<ul style="list-style-type: none"> There are 441 nuclear power reactors in operation in 31 countries around the world, accounting for approximately 17 percent of worldwide electricity generation, effectively avoiding the production of 3.5 billion metric tons of carbon dioxide. 	<ul style="list-style-type: none"> The Global Nuclear Energy Partnership (GNEP) plans to work with partners to develop grid-appropriate reactors for developing countries. Through the Generation IV International Forum (GIF), project work will be expanded on the 6 most promising GEN-IV nuclear power systems. IAEA is planning workshops to support developing countries in adding nuclear power to their energy mix; an IAEA report on “Innovative Financing for Nuclear Power” is due late 2007. The U.S. will continue to work with developing countries who have expressed an interest in developing nuclear power programs. <p><u>Partnerships Working to Replicate this Solution</u></p> <ul style="list-style-type: none"> The Global Nuclear Energy Partnership (www.gnep.energy.gov) The Generation IV International Forum (GIF) (http://www.nuclear.gov/genIV/neGenIV2.html)

