

# **Technologies for Which Commercial-Potential Assessments Have Been Completed**

## **More competitive renewable energy**

- High-Throughput Manufacturing of High-Efficiency Solar Cells
- Method for Forming Thin Semiconductor Films
- Self-Actuating Spillway Control Waste
- Solar Skylite Water Heater
- The Sunlight Pipe
- Ultra-Lowhead Ambient-Pressure Hydroturbine
- Float-Zone Silicon Sheet Growth
- Two-Phase Hero Turbine with Curved No Separation Nozzles
- Extra-Focal, Convective Suppressing Solar Collector

## **New bioenergy, agricultural, and wood-products technologies**

- Reactor/Separator for Ethanol from Cellulosics
- Anaerobic Pump
- Cardboard Recycling System for Manufacturing Firestarter Products
- Irrigation Valve Solenoid
- Harvesting Technology for Chinese Tallow Tree Oil Seeds
- Second-Stage Drying System
- A New Ozone Monitor
- Process/Apparatus for Drying Utility Poles and Heavy Timber
- Christian Veneer Dryer
- Stalk and Root Embedding Apparatus
- Method & Apparatus for Energy Efficient Drying
- Apparatus for Removing Bark from Whole Logs
- Molten Film High-Intensity Paper Dryer
- Linear Corrugating
- Clean Production of Coke from Waste Carbonaceous Fines
- Automatic Oxygenation System for Aquaculture
- Modular Agricultural Carbonizer/Incinerator

## **Enhanced building systems**

- High R-Value Environmentally Safe Rigid Foams
- High-Wattage Energy Saving CFL Adaptor for Recessed Downlights
- Exterior Central Air Filtering System
- Ultraflow Automated Plumbing System
- Improved Poured-Concrete Wall-Forming System
- “System 150” Insulated-Foundation System
- Heat and Mass Transfer System
- Method and Apparatus for Cleaning Cooling Towers While System is Online
- Single-Crystal Whisker Electric Light Filament
- Magnetic-Seal Interior Insulating Window

Therma-Wall Gas-Filled Panels  
Gibbar-Wall System  
Whitecap  
Energy Efficient Skylight (SEALight)  
Method of Constructing Insulated Foam Homes (AMHOME)  
Insulation Containment Apparatus (The Ultimate "R")  
Electronic Starter Device for Fluorescent Lamps  
RR-1 Insulating Screw Cap  
Ice Bear: Thermal Energy Storage for the Small Packaged Terminal Air Conditioning Unit  
Dehumidification Enhancement of Air Conditioners by Desiccant Moisture Exchange  
Elastomer-Bed Air Conditioner/Heat Pump/Heat Recovery

### **Utility power generation and efficiency enhancements**

Electric Utility Energy-Storage Device  
Load-Management Device and Method of Use  
Flow Integrating Section for a Gas Turbine Engine  
Fiber-Optic Current Transformer  
Coal (Fired) Air Turbine "CAT" Cycle  
Surface-Profiling System Optimized for the Inspection of Turbine Blades  
Clean Energy from Municipal Solid Waste  
Power Guard  
Hydro-Pneumatic Apparatus for Harnessing Ultra Low-Head Hydropower Steam Generator  
Feedwater Control System  
Load-Management Device and Method of Use  
Electric Utility Energy Storage Device  
Fiber-Optic Current Transformer

### **Improved industrial processes, equipment, and materials**

Nickel-Based Superalloy with Improved Weldability and Oxidation Resistance  
Molten Film High-Intensity Paper Dryer  
Laminated Ceramic Cutting Tool  
Lattice Block Materials: Three-Dimensional, Welded-Fiber, Structural Bias-Ply Textiles  
Recovering Acid and Metal Salts from Pickling Liquors  
Composite Electrodes for Advanced Electrochemical Applications  
Microwave Treatment for Pressed Garments  
Enhanced Method for Producing Glass Fiber  
Metallurgically Bonding Aluminum-Base Inserts within Aluminum Casting  
Molten-Metal Flow Control System  
Laser Ablative Chemical Etching (LACE)  
Pipe-Cleaning Machine  
Sag-Resistant Pinhole-Free Coatings  
Fusion-Bonded Powder Coatings Applied to Inside of Tubular Goods  
Ultraviolet Radiation for Crosslinking of Polybis (Methoxyethoxyethoxy) Phosphazene  
Tribopolymerization of an Anti-Wear Mechanism  
Resistance-Welder Adaptive Control

Dynamic Measurement Scheme for Characterization of Material Property Evolution  
Synthesis & Sintering of Fine and Ultrafine Grain NZP Ceramics  
Whisker-Reinforced Glass Ceramic  
Replacement of Thermally Produced Calcined Clay with Chemically Structured Pigment  
Ceramic Fabrication and Compaction Process  
Full-Strength Flush-Joint Pipe Connection  
Wear-Resistant Composite Structure of Vitreous Carbon Containing Convuluted Fibers  
Apparatus for Forming Particles into Shaped Articles  
High-Density Active Carbon Electrodes  
Hollow Fiber Absorber for Separation Applications  
Automated Thermal Treatment of Metals with a Mechanically Fluidized Vacuum  
High-Speed, Precision Diamond Particulate Edged Bandsaw  
Ozone Generator Dielectric Improvement  
Ceramic-Refractory Coatings  
Hafnium Carbide Crystal Fiber for Ceramic Cutting Tool Reinforcement  
Improved Radiant Burner Material  
4000° Radiant Burner Screen Material  
Electrolytic Regeneration of Acid Cupric Chloride Printed Circuit Board Etchant  
Process to Recover Acid and Metal Salts from Pickling Liquors  
Acme-Nut's Lubricant Retaining Grooves  
Insert Drill Having Three or More Flutes and Method of Manufacture  
Thermal Heat Diffusion Treatment of Bulk Powders  
Laminated Ceramic Cutting Tool  
Electric Rotary Furnace for Glass Molding (Repressing) Precision Optical Blanks  
Apparatus and Method for Filtering Molten Metal  
Method for Producing Glass Fiber  
Laser Ultrasonic Furnace Tube Coke Monitor  
Composite Electrodes for Advanced Electrochemical Applications  
Single Device Equivalent to CMOS  
Method of Making Steel Strapping and Strip  
Silicon Semiconductor Wafer Test  
A Pilot Plant Processor for the Production of Silicon  
Dye and Pigment Removal from Recycled Plastics  
GFX: System for Recovery of Waste Hot Water Heat Energy  
Globelin Loom  
Carbon-Fiber Composites with Improved Resistance to Fatigue  
Burner-Control System  
Environmental Tensometer  
Fiber-Optic Anti-Cycling Device  
The Energy Saver  
Method of Recycling Hazardous Waste  
Process and Apparatus for Extraction and Recovery of Lead  
Foamed Recyclables  
Surface Plasmon High-Efficiency HDTV Projector  
Hydrodyne Process for Tenderizing Meat  
Sterol Ice Nucleation Catalysts

Water Saving Device for Toilets: Smart Flapper  
Liquid Leak Detection System (Check-A-Leak)  
Cyclic Microwave Treatment of Pressed Garments  
Peripheral Mower Blade  
Methods and Devices for Energy Conservation in Refrigerated Chambers  
Electronic Refrigerant Leak Detector  
Refrigerator with Pan Chiller system  
Development of Energy Efficient Refrigerator Compressor  
Membrane Technology for Ammonia Refrigeration Systems

### **More efficient transportation technologies**

Alvar Engine  
High-Pressure Electronic Common Rail Fuel Injection System for Diesel Engines  
Carsonite Noise Barrier Wall  
Process for Manufacturing an Asphalt Modifier/Sealer from Scrap Tires and Waste Oil  
Flywheel Electric Battery  
Improved Cadmium Electrodes for NiCad Batteries  
Dual-Conversion System for High Output, Medium Speed Diesel Engine  
Clemson Camshaft  
The Turbo-Z Battery Charging System  
Combined Battery and Structure for Heightened Energy Storage in Electric Vehicles  
Seacoaster  
Flow Integrating Section for a Gas Turbine Engine  
The Road Patcher  
Traffic Assist Traveler Information System

### **Cleaner, more efficient fossil-fuel retrieval and use**

Down-Hole Production Pump and Circulation System  
Process for Drying and Stabilizing Low-Rank Coals  
Process for Sulfide Reduction & Increased Oil Recovery  
Method & Tool for Logging & Drilling  
Ejecting Particulates from the Flow Path of a Coal-Fired Turbine Generator  
Automatic Gas Light  
Ultrasonic Inspection of Tubulars and Vessels  
2X4 Drilling and Hoisting System  
Reciprocating Rod Pump Seal Assembly  
Totally Automated Production System  
Vibrating Counter-Flow Heat Exchanger for Hot Solids  
New Technology for Sulfide Reduction and Increased Oil Recovery  
Density Separation in Complex-Mode Vibration Fluidized Beds  
Complex-Mode Vibration-Fluidized Bed for Coal Pyrolysis  
System for Discovering the Locations of Sea Floor  
Combustion of Municipal Solid Wastes with Oil Shale in a Circulating Fluidized Bed

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## **Others**

Promising hydrogen advancements

Low-Platinum Loading, Hydrophilic Fuel Cell Electrode  
Low Platinum Loading, Hydrophilic Fuel Cell Electrode for Use with A Proton Exchange Membrane

## **Higher efficiencies in the commercial sector**

Method and Device for Energy Conservation in Refrigerated Chambers  
Waste Hot Water Recovery System  
Dehumidification Enhancement of Air Conditioners  
Linear Motor Refrigerator Compressor  
Peripheral Mower Blade

## **Greater safety for law enforcement and corrections**

*Tiger Vision* Night Vision Device  
Less-Than-Lethal Launcher and Projectile Module System  
Blast-Initiation Devices  
Automated Light Survey System

## **Innovations in electronics**

Laser Television  
Electronic Refrigerant Leak Detector  
Electronic Starter Device for Fluorescent Lamps