

Turkey Energy Build-Up

This “mock” application was prepared as an example to assist MDCP award applicants. It does not represent the interests or intentions of any actual entities. Applicants should prepare their applications using relevant up-to-date information.

An executive summary of the proposed project is included as the first page of the budget narrative.

PROJECT NARRATIVE

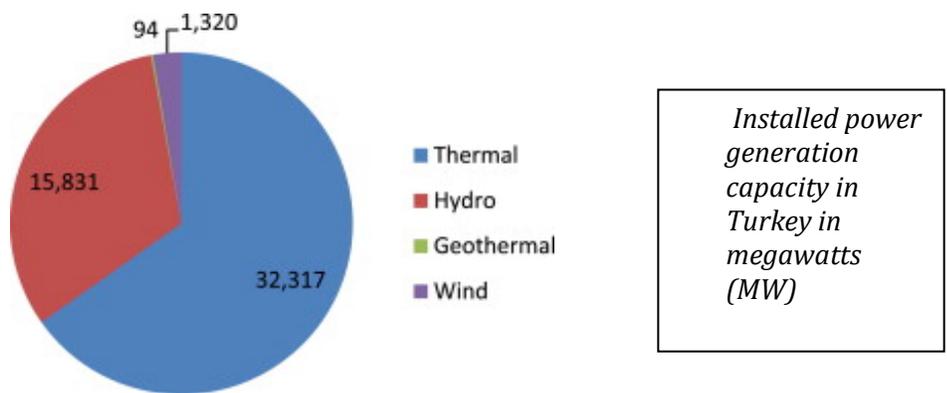
Established in 1992, the Business Alliance for Renewable Energy (BARE) represents the interests of over 1,000 member companies. The industry these companies compete in includes geothermal, solar, wind, bio-mass, and hydroelectric sources of renewable energy. Some BARE members, especially those involved in electric power transmission and regulation, offer products and services common to both renewable and non-renewable energy sources such as clean coal and nuclear power, but for the most part, BARE members focus uniquely on energy from renewable sources.

With the help of an MDCP award, BARE plans to lead the U.S. renewable energy industry in developing Turkey as an export market for U.S. goods and services.

Demand in Turkey for Renewable Energy and Energy Efficiency (RE/EE)

As both the U.S. Commercial Service (CS) and United Kingdom Trade and Investment (UKTI) point out, Turkey is a vibrant and growing market. Prospects for growth in renewable energy and energy efficiency (RE/EE) are particularly good.¹

Turkey has undertaken a major RE/EE program. CS reports that the country “aims to increase its clean energy share to 30% of its power supply by 2023 – the 100th anniversary of the Turkish republic.” To help accomplish this, Turkey will invest \$40 billion in RE/EE during the eight years 2013-2020 or \$5 billion per year. In its report, CS goes on to identify “major business development opportunities in solar, wind, geothermal, hydro and all elements of energy efficiency.”



The viability of these particular sectors classified as RE/EE is also the message underscored by UKTI. For example, Turkey will need the entire range of infrastructure to produce wind-based

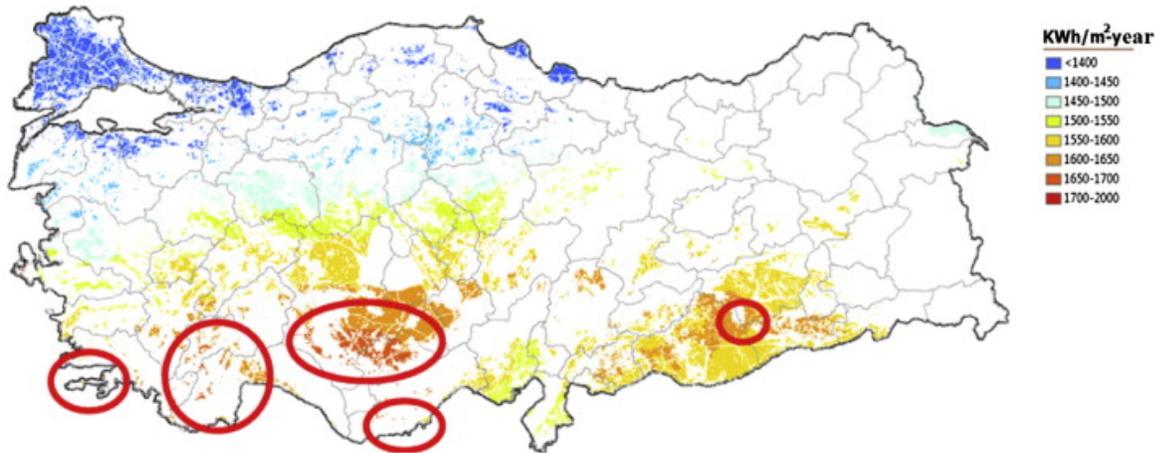
¹ See Spotlight on Turkey: U.S. Business Opportunities in Renewable Energy and Energy Efficiency into 2014, Michael Lally and A. Serdar Cetinkaya U.S. Embassy Commercial Service (CS) Ankara, Turkey (Export.gov) and Sector Report: Power and Renewable Energy: Turkey, UK Trade & Investment (UKTI), March 2009 (<http://static.globaltrade.net/files/pdf/20100922101900.pdf>).

energy, distribute it, and regulate it. By the country’s 2023 centennial, it plans to increase wind power almost twelve fold to 20,000 megawatts (MW). Increase in hydro-electric capacity is projected to be even greater. As UKTI points out “Turkey possesses a significant number of rivers and lakes (with approximately 36,000 MW of energy potential), which offers ideal opportunities for the small and large-scale energy companies.” Geothermal resources to be harnessed are also significant. Turkey ranks 7th in the world in geothermal potential.

Solar

Turkey’s solar power generation potential is on a scale roughly equivalent to Spain or California. All three are roughly on the same latitude. However unlike California, or especially Spain, Turkey has done relatively little to tap the potential of solar power. This is due, in large part, to the lack of incentives in Turkey. This has begun to change. In December 2010, Turkey introduced a price guarantee of \$0.133 per kilowatt-hour for solar energy. This is only 1/6 the price guarantee that Spain provides, but it is enough to entice U.S./Dutch firm GiraSolar to propose a 100-MW photovoltaic power station in southern Turkey. Such solar plants, as opposed to dispersed, mostly rooftop installations as predominate in Germany and elsewhere in Europe, are particularly attractive in Turkey, where sunshine and available land make them a more viable option.

POTENTIAL SITES SUITABLE FOR SOLAR POWER PLANTS



○ : GLOBAL SOLAR RADIATION FIELDS GREATER THAN 1650 kWh/m² x year

“Potential of renewable energy in electrical energy production and sustainable energy development of Turkey: Performance and policies,”
- Hüseyin Benli

The map above² shows areas in Turkey particularly disposed to the development of large solar power plant installations. U.S. solar companies are well placed to compete for such large solar

² Hüseyin Benli, Department of Technical and Vocational Education, Fırat University, TR-23119 Elazığ, Turkey, (<http://www.sciencedirect.com/science/article/pii/S0960148112004028>) (Hereinafter: Hüseyin Benli)

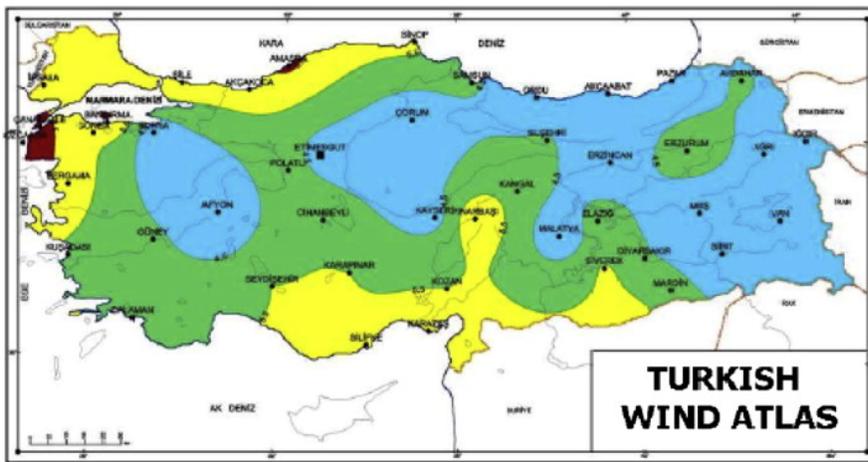
plants, as compared to dispersed rooftop capacity. U.S. companies pioneered solar plants with projects going back to the 1970s and 1980s in the southwestern deserts of the United States.

Many U.S. solar energy companies are having a tough time. In 2011, publicly traded shares in U.S. solar energy firms dropped 57%. (See “Dark Times Fall on Solar Sector,” *New York Times*, Dec. 27, 2011.) Competition from China’s photovoltaic (PV) solar panels makers has been stiff. But U.S. firms excel at solar farm technology that does not rely on PV panels that China has begun to manufacture so cheaply. Farms use parabolic reflectors to focus solar energy on a molten element is a technology that lends itself only to large-scale plants. Turkey is a prime candidate to host such plants.

Wind

Opportunities for wind power development are significant and U.S. firms may have some advantages. In order for Turkey to increase its wind-generated energy capacity twelve fold by 2023, it will need to have an average annual increase of capacity of between 30 and 40%. It is doubtful that Turkey could possibly achieve such an increase while relying on domestic capacity. In fact, Turkey lacks the research and development, manufacturing, and service capacity to have even achieved what small gains it has heretofore.

Moreover, the majority of wind potential in Turkey is around its coastal periphery where any advantage a Turkey company might have due to overland networks and supplier connections would be nil compared to sea-supported or sea-based development likely to be employed by U.S. firms. As indicated on the map below, most of the opportunities are at the northwest coast on the Aegean Sea, the coasts of the Sea of Marmara, the southwestern coast of the Black Sea, and southern central Turkey near the Mediterranean Sea.



Wind resources at 50 m above ground level for open plains (roughness class 1)

v (m/s)	> 7.5	6.5 – 7.5	5.5 – 6.5	4.5 – 5.5	< 4.5
P (W/m²)	> 500	300 - 500	200 - 300	100 - 200	< 100

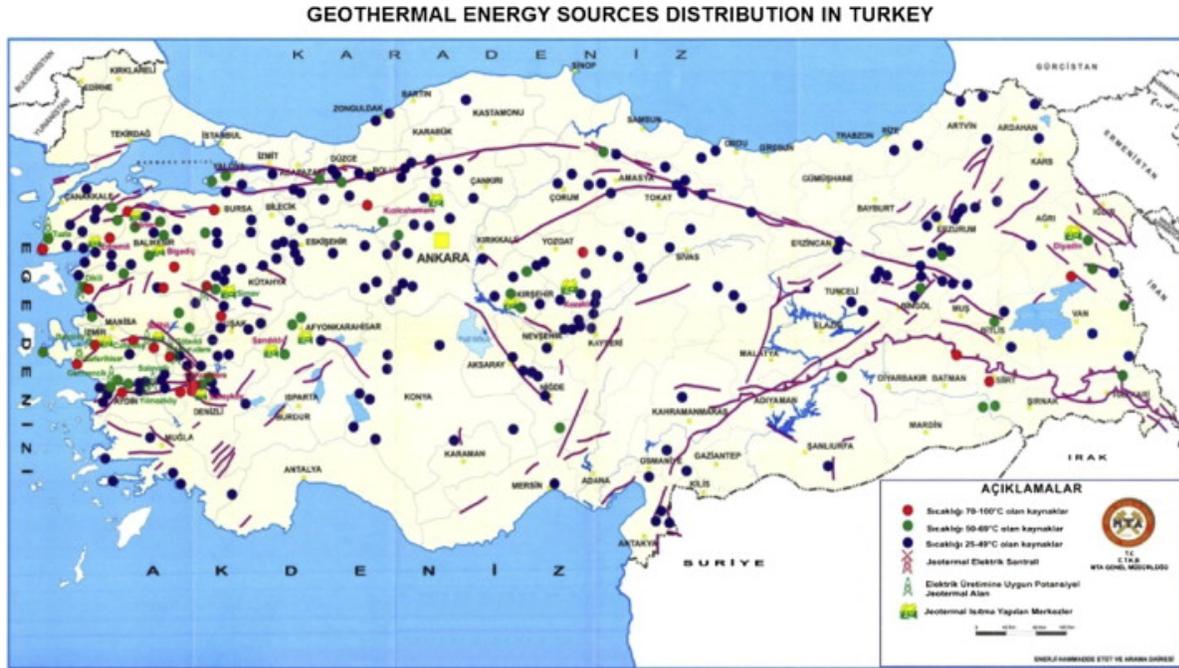
Hüseyin Benli

Another advantage the U.S. industry has is idle capacity. As pointed out in a September 21, 2012 article in the *New York Times*, wind energy employment has slackened in United States in the face of cheap competition from Asia, weak electricity demand, expiring federal tax credits, and cheap

natural gas. This means that the excess capacity of the U.S. industry to fulfill demand is great. It also means that U.S. firms will have to be more interested in exporting as a matter of economic survival.

Geothermal

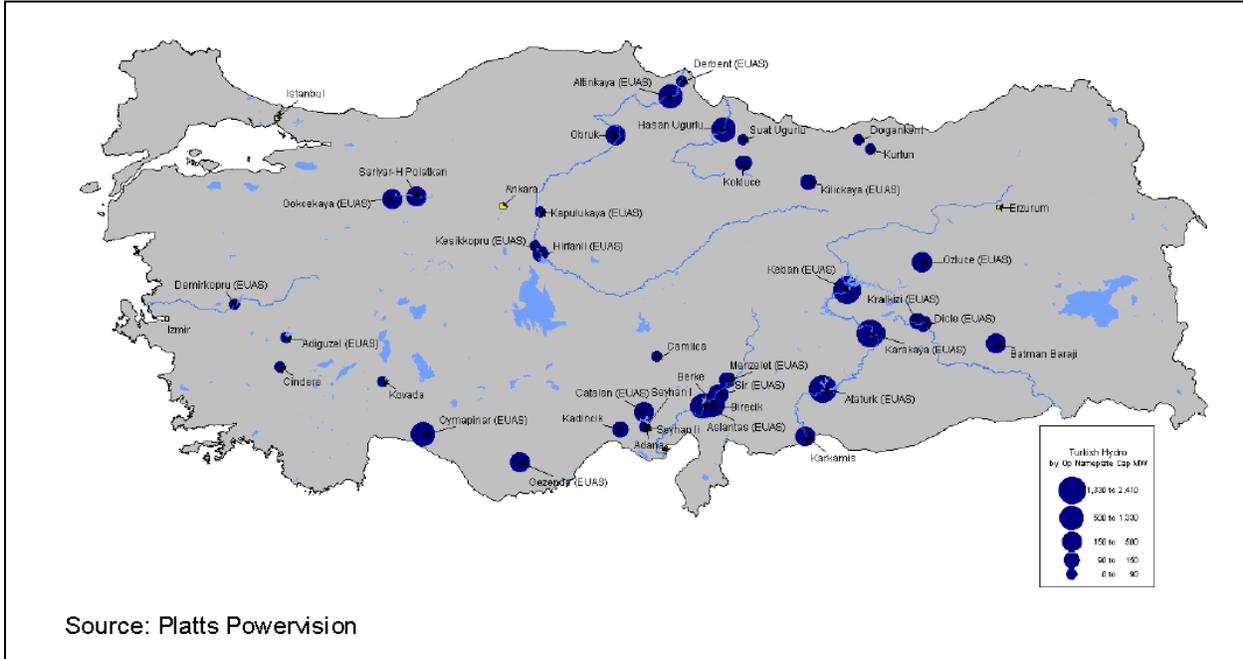
Significant opportunities exist for U.S. firms for geothermal exploration, drilling and geophysical engineering services. While as shown on the pie chart of current energy production, the proportion that comes from geothermal is small, Turkey is committed to fully harnessing this resource.



U.S. firms were some of the earliest to develop expertise in harnessing geothermal power generation. Large installations in the western United States have been in operation for decades. Moreover, much of the infrastructure that supports the exploration and exploitation of geothermal power potential is the same infrastructure that supports the oil and gas industry’s exploration and exploitation activities. This would be an advantage for U.S. firms.

Hydro

Exploitation and management of hydro-electric capacity in Turkey is characterized by numerous enterprises, most small or medium-sized. The interests of these firms have been pushed hard by the Erdogan Government, which wants to exploit 100% of Turkey’s hydro potential. A couple of very big projects have proved to be a difficult sell for the government. For example, in 2009 work stopped on Ilisu dam on the Tigris River due to the planned displacement of thousands of residents and the inundation of historical sites. Another project, the Beyhan dam on the Euphrates River would require the forced clearance of villagers, mostly Kurdish, in areas still smarting from war with the Kurdish PKK in the 1980s. Both projects could have been sticking points in relations with downstream states Syria and Iraq. But bilateral regulation has now brought certainty. Such international concerns no longer threaten to derail projects as they once did.



Still, most projects are proceeding or will proceed in order to meet the government’s goal of doubling the current hydro capacity by the 2023 deadline.³

Market for RE/EE in Turkey

As shown in the diagram below, the wholesale market for electricity is divided between state-owned TETAS and 69 privately-owned companies. Between them, these account for most of the growing RE/EE-based generating capacity that the government is so strongly encouraging.

While many of the energy companies in Turkey would compete with U.S. firms, most, even those that do compete head-to-head in one realm, are greater potential customers than they are competitors. Here are the major Turkey players in hydropower: ⁴

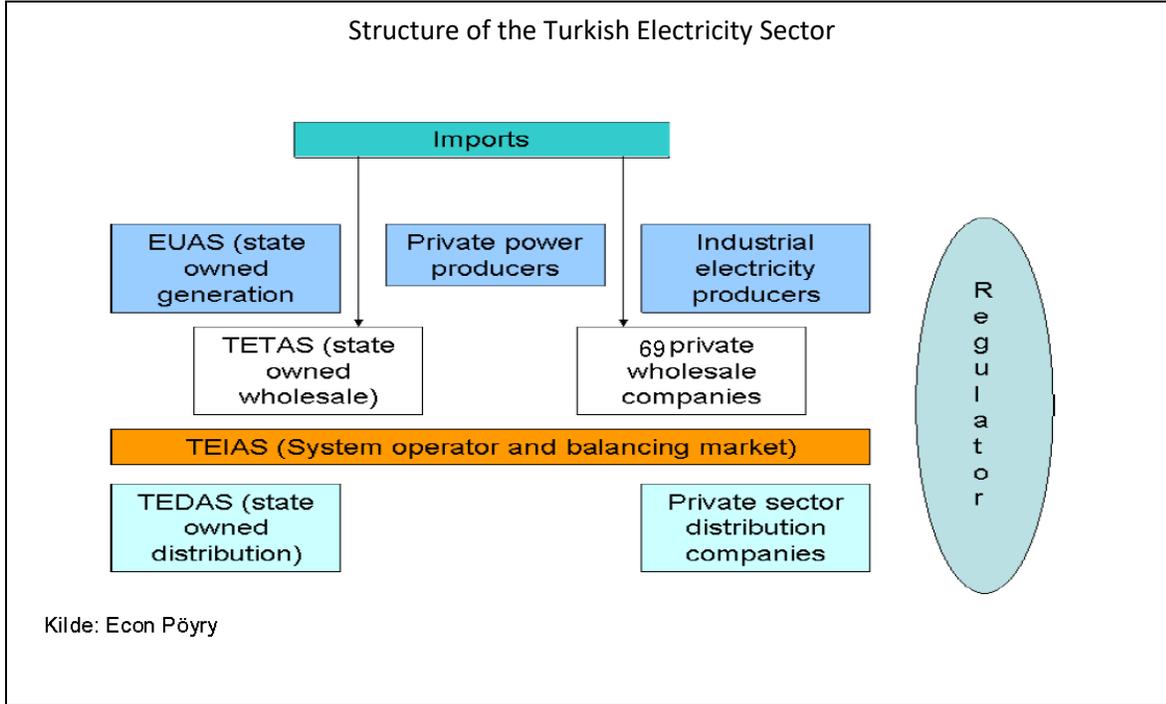
- Akenerji Elektrik Uretim A.S. (Akenerji),
- Guodian Changyuan Electric Power Co., Ltd.,
- Aksa Enerji Uretim A.S., and
- Zorlu Enerji Elektrik Uretim A.S.

Given the fast pace of development by 2023 called for in Turkey’s plans, it is unlikely that these or other firms would be able to fill the demand. As noted below, some third-country competitors, especially from Europe, would compete head-to-head with U.S. firms, but others would likely be interested in integrating U.S. products and services in the design, construction, and operation of power plants.

Sources for this mock application are quite out of date. Your actual application should have the most current sources reasonably available.

³ The Guardian, Fiachra Gibbons and Lucas Moore, Sunday 29 May 2011.

⁴ Energy Business Review (EBR)



“Hydropower in Turkey: Potential and Market Assessment,” Pöry Management Consulting (Norway) AS, commissioned by Norwegian Renewable Energy Partners.
(http://www.econ.no/stream_file.asp?iEntityId=4732)

Third-Country Competitors

European firms are the most active foreign RE/EE players in Turkey. These are mostly large firms like A2A SpA, or GDF Suez. These two particular firms, one Italian and one French, are primarily concerned with generating, selling and distributing electricity. Therefore, they do not compete directly with U.S. firms eager to sell RE/EE design services or products. In fact, their core businesses are activities complementary to or require U.S. RE/EE products and services. By contrast, other large European firms like ABB Ltd and Andritz AG do offer products and services that compete with those offered by U.S. firms. These include turn-key hydropower installations.⁵

Work Plan

BARE has a simple strategy for helping U.S. companies export RE/EE products and services to Turkey. This strategy is built around an industry forum one industry forum and one trade show in Turkey and one trade show in Germany/Austria:

Industry Forum

International Energy Congress and Fair /EIF 2022
Ankara, Turkey
1-2 November 2022

EIF is a platform for addressing a wide range of topics related with energy production in Turkey and all around the World. Organized by Turkey’s Global Energy Association, EIF is an annual event

⁵ See <http://hydro.energy-business-review.com/companies>

focusing on the latest developments and industry practices. Presenters, including some ministry heads from throughout the region, mingle with EIF participants, who have the option of a small exhibition space.

BARE will leverage EIF to announce its MDCP project and solicit public sector entities to assist in outreach to Turkish companies and government agencies interested in partnering with U.S. firms.

Trade Fairs

RENEX Eurasia Renewable Energy

Ankara, Turkey

Mid-November 2023, 2024, 2025

Begun in 2010, this trade show focuses on renewable energy and environmental technology. Exhibitors mostly represent renewable, conventional, energy, power, wind, solar, photovoltaic, hydropower, geothermal, biomass, biogas, biofuel, battery, coal, nuclear, oil, gas, offshore, pipeline, and green sub-sectors. Visitors include electricity producers and distributors, fitters, engineers, contractors, architects, technical consultants, building economists, social housing departments, local and regional authorities.

Power Executive Program

POWER-GEN Europe

(June 2024 in Vienna and June 2026 in Cologne)

POWER-GEN Europe is the region's largest event dedicated to power generation. With than 13,000 attendees and 600 exhibitors from over 100 countries this annual fair attracts public and municipal utility owners and managers, plant owners and operators, project developers and managers, independent power producers, investors, traders, and OEMs from throughout the region.

Outreach and Preparation to Participate in Trade Fairs

Within weeks of receiving an MDCP award, BARE will embark on an outreach campaign to secure participation by 50 RE/EE companies in activities designed to prepare U.S. firms to participate in one or more of the trade shows. In addition to email invitations, home-page announcements, and a phone campaign targeted at the best prospects for expanding to Turkey, BARE will invite Commercial Service offices from the U.S. field located near each U.S. firm in the industry to coordinate efforts to get them to participate.

Annual Turkey Overviews

BARE holds its annual meeting each year in mid-January and has the tradition of several 90-minute workshops available to participating companies. Each year of the project, BARE will have a workshop devoted to preparing to enter the Turkey RE/EE market. These workshops will include primers on: the market, business customs, export financing, the two fairs, special benefits available thanks to the MDCP award, Commercial Service and other ITA services. BARE will invite the leader of the ITA-MDCP project team as well as Turkey-based Commercial Officers and locally engaged staff of the Commercial Service such as Serdar Cetinkaya to present.

Pre-Fair Seminars

There are two fairs and one forum in years 2 through 5 of the project. So, BARE will recruit and take delegations of U.S. exporters to five trade fairs. Several months prior to each fair, BARE will hold at least three webinars to inform companies about the events and encourage them to participate. I&A industry specialist(s), Turkey-based Commercial Officers, and locally engaged staff of the

Commercial Service such as Serdar Cetinkaya will be invited to participate/present during these webinars. BARE will invite export finance experts, such as representatives from local Small Business Administration and Export-Import Bank, to participate as well.

Pre-Fair One-on-One

BARE will coordinate with each interested firm's local Commercial Service office so that within one month of the pre-fair seminars, they reach out together to firms that have registered interest in participating in the trade fairs. These outreach calls will be individualized. BARE and local Commercial Service offices can coordinate asking interested firms if they have all of the elements in place to be ready for the show, e.g. relations with logistics firms that can facilitate exports, and export financing. BARE will remind each firm of the need to report export successes.

Trade Fair Participation

The most significant financial benefit that BARE offers its members is a trade fair participation package that essentially reduces the amount that a BARE member would pay by \$1,640 for the RENEX show and by \$1,965 for PowerGen. For companies that are not BARE members, the reduction would be \$500 less than what they would otherwise pay. This benefit is limited to firms with 500 employees or less. Details are set forth in the Success Agreement and the budget.

Post-Fair Follow Up

BARE will coordinate with each participating firm's local Commercial Service office so that within one month of the trade fair, they: offer help following up with trade leads, offer services such as Gold Key or International Partner Search that may help the company take next steps, and ask the firm to report exports generated by their participation in the trade fair.

Performance Measurement

Project-specific milestones and exports to be generated by the project are calculated and presented in the budget narrative.

Participation in the Project by U.S. Companies

BARE has shared a summary of its MDCP project idea with its members to determine the level of interest. Attachment 1 is a summary of the companies that expressed some level of interest. Note that 13 of these firms have already declared to BARE their intention to participate in the project if it receives MDCP funding.

Resumes of Key Personnel

BARE Executive Director, Constance Inopal, CAE

Ms. Inopal has directed BARE since 2001. Prior to coming to BARE as executive director she was an account executive for Zephyr Industries, a manufacturer of wind turbine components. Ms. Inopal has been a certified association executive (CAE) since 2006. She has a bachelor of business administration degree from Cornell University and an MBA from Syracuse University. She also serves on the marketing committee of the American Society of Association Executives.

BARE, Marketing Manager, Wendy Whittle

Ms. Whittle came to BARE from the advertising firm Wilson and Sonren of Cleveland. From 1997 to 2009 she serviced several accounts, including several fastener companies. She has a bachelor of business administration with an emphasis in marketing from Ohio State University. Ms. Whittle is

fluent in Spanish and French. Since coming to BARE in 2009, Ms. Whittle has increased BARE membership 14% despite several consolidations in the industry.

BARE Outreach Director, Istvan Bull, CAE

Mr. Bull has held his current position since 2011. Prior to serving as executive director, he was BARE's marketing manager, a position he held beginning in 2007. Prior to that Mr. Bull was director of member services and event management at the Sheet Metal Manufacturers Institute. (SMMI). In addition to a bachelor's degree in Spanish and a Master of International Management from Thunderbird. Mr. Bull recently coordinated the opening of an office in Mexico City. From this office, 27 BARE members have established agent or distributor relationships in Mexico, Costa Rica, and Colombia. He is fluent in Hungarian, German, and Spanish.

These yellow note boxes are intended only for guidance.

- Start with a fresh, blank word processing document,
- DO NOT INCLUDE THESE YELLOW NOTE BOXES or the "BARE" headers in the document you intend to submit.