REQUEST FOR EXPRESSIONS OF INTEREST FOR DOE PADUCAH GASEOUS DIFFUSION PLANT FACILITIES AND DOE DEPLETED AND OFF-SPECIFICATION UF_6 INVENTORIES

The U.S. Department of Energy (DOE) is requesting expressions of interest (EOIs) from industry related to the following, either separately or in combination:

- Lease or purchase of DOE Paducah Gaseous Diffusion Plant (PGDP) facilities or land near Paducah, Kentucky, either to continue the use of the facilities to enrich uranium, or separately for other nuclear fuel industry applications (e.g., analytical laboratory, uranium transfer and shipping facility) or to utilize individual facilities (e.g., buildings, warehouses, machine shops, utilities) for other commercial purposes.

- Purchase, exchange, or transfer of various lots of uranium hexafluoride (UF_6) inventories in standard and non-standard cylinders from the DOE PGDP and the DOE Portsmouth Gaseous Diffusion Plant (PORTS). These inventories include large amounts of high-assay depleted UF_6 (DUF_6) and smaller amounts of slightly enriched and normal assay off-specification UF_6. All of these materials are free from any prior obligations. In addition, DOE also has large amounts of low-assay DUF_6 available. This request for EOIs pertains only to the inventories of uranium identified in this EOI and no other DOE uranium inventories; for example, it does not pertain to DOE inventories of natural UF_6 and is unrelated to the ongoing transfer of UF_6 in exchange for cleanup work at PORTS.

- Any combination of the above two bullets (e.g., use of a portion of the DUF_6 in the enrichment operations at the PGDP).

The intent of this request for EOIs is to identify opportunities to create value for the U.S. government while lowering overall program costs for surveillance and maintenance and/or disposal of uranium materials.

OVERVIEW OF PADUCAH GASEOUS DIFFUSION PLANT FACILITIES

The United States Enrichment Corporation (USEC) currently leases the PGDP from DOE and operates the plant to enrich uranium. It is expected that USEC will return essentially all of the PGDP facilities to DOE in the very near term. When DOE accepts USEC's return of the PGDP to DOE, the opportunity may exist for private industry to lease or purchase PDGP facilities or land, either to continue to enrich uranium and/or to utilize individual facilities (e.g., buildings, warehouses, machine shops, and utilities) for other commercial purposes. The potential also exists for DOE to sell or transfer vacant land and/or personal property associated with PGDP facilities) for reuse/reindustrialization.

The PGDP gaseous diffusion parallel cascade includes 1760 stages. The parallel configuration allows the number of stages in series to shift as needed for production efficiency. Through the use of different valve configurations, the plant is operated by USEC to enrich uranium up to

assays of about 5.5% ^{235}U. More detailed information about the PGDP is presented in Attachment 1.

The PGDP is a large industrial site that may have radiological or chemical contamination within or around the perimeter of the facilities. Facility contamination would need to be considered in planning for alternative uses at the site. DOE is responsible for implementing the environmental cleanup program at PGDP under the Federal Facilities Agreement among DOE, the Commonwealth of Kentucky, and the U.S. Environmental Protection Agency.

DOE is interested in uses for PGDP assets that would benefit the local Paducah economy. DOE will also consider the implications of any company that operates PGDP as an enrichment facility on the DOE mission to support national nuclear security and on any safeguards and security requirements. Interested firms should provide information indicating whether they are a wholly-owned U.S. corporation or would otherwise be able to satisfy the legal requirements in a manner that would allow any enriched uranium resulting from enrichment at the PGDP to be available for national security purposes. Detailed information on conditions, considerations, and submittal requirements for EOIs for the lease or purchase of PGDP facilities is presented in Attachment 2.

DOE has broad authority, including section 161g. of the Atomic Energy Act of 1954, as amended, to lease or sell real and personal property. DOE looks to lease, sell or transfer the property in this EOI in a manner and at a value that is overall in the best interest of the government.

OVERVIEW OF URANIUM HEXAFLUORIDE (UF_6) INVENTORIES

DOE has large inventories of UF_6 located at the DOE PGDP and at the DOE PORTS site near Piketon, Ohio. DOE has DUF_6 Conversion Plants at both of these locations. DOE has identified the opportunity to offer for sale, exchange, or transfer (1) high-assay DUF_6 (i.e., DUF_6 with 0.341% to 0.7% ^{235}U or more), as well as (2) certain off-specification, slightly enriched UF_6 (i.e., UF_6 with an average assay of 1% ^{235}U) and normal-assay uranium (i.e., previously processed uranium with 0.711% ^{235}U). Large amounts of low-assay (i.e., 0.15% to 0.34%) DUF_6 are also available. DOE is seeking detailed EOIs from parties interested in receiving as UF_6 the high-assay DUF_6, the off-specification UF_6, the low-assay DUF_6, or a combination of the categories. DOE would comply with all applicable laws in conducting any transfer or sale of uranium, including section 3112(d) of the USEC Privatization Act for transfers or sales of material covered by that section. Attachment 3 presents a summary of the high-assay DUF_6 cylinders at PGDP and PORTS that shows assay ranges and total metric tons of uranium (MTU). The DUF_6 is primarily contained in thin-walled 14-ton metal (48G) cylinders. The majority of this DUF_6 meets the equivalent of the ASTM specification for commercial UF_6 feed material, ASTM C787-11 Standard Specification for Uranium Hexafluoride for Enrichment. (There is no ASTM specification for DUF_6.) However, some of the DUF_6 is known to contain trace contaminants as a result of historical processing in the gaseous diffusion plant cascades. Attachment 3 also presents a summary of information for the off-specification slightly enriched and normal UF_6 material. Additional information on all of these uranium materials is available on request.

Responses to this request for EOIs should propose potential commercial use of the uranium materials in order to assist DOE in evaluating as necessary any potential adverse material impacts on the domestic uranium market. Detailed information on conditions, considerations, and submittal requirements for EOIs for the purchase, exchange, or transfer of uranium materials is presented in Attachment 4.

DOE is also interested in receiving responses from firms interested in a combination of the PGDP facilities and the uranium materials (e.g., using the PGDP to re-enrich DUF_6 material).

ATTACHMENT 1

PADUCAH GASEOUS DIFFUSION PLANT

The Paducah Gaseous Diffusion Plant (PGDP) is located on a 3556-acre DOE reservation, 12 miles west of Paducah, Kentucky. Most of the PGDP facilities essential for uranium enrichment operations are located within a fenced Limited Area of 644 acres. A water treatment plant and various smaller facilities are located in a 194-acre Property Protection Area outside of the Limited Area. There are 19 miles of roadway at the site. The PGDP borders the West Kentucky Wildlife Management Area.

PGDP has operated as a uranium enrichment facility continually from 1952 to the present. Enrichment operations at the plant are currently conducted by the United States Enrichment Corporation (USEC), a private company. USEC leases all enrichment process-related buildings from DOE, as well as the Administration Building, the Guard and Fire Headquarters, the Equipment Cleaning Building, the Technical Services Building, and the Maintenance and Stores Building. USEC uranium enrichment activities are conducted under a certificate issued by the Nuclear Regulatory Commission (NRC). Authority for activities conducted in common areas at the site is dependent on the agency performing the work. Most of the DOE-owned land at the site is licensed to the Commonwealth of Kentucky as part of the West Kentucky Wildlife Management Area.

The PGDP parallel enrichment cascade utilizes four process buildings. The upper and lower cascades both consist of a larger and a smaller process building. The two larger process buildings each have approximately 26 acres under roof. The two smaller process buildings each have approximately 13 acres under roof. Connected to the cascade are separate facilities for tails withdrawal and product withdrawal. The plant has 400 miles of process piping. There is also a Central Control Facility and a Toll Transfer and Sampling Facility with systems for receiving, sampling, transferring, and shipping cylinders containing UF_6.

Four sets of cooling towers (one for each process building) remove heat generated by the enrichment process. Each process building/cooling tower configuration includes a pump house, cooling tower, blending cooling tower, and other support buildings. Approximately 500 million gallons of water are recirculated in the plant every 24 hours. At the plant's current typical operational level of 900 megawatts, approximately 12 million gallons of water must be replaced each day with water from the Ohio River, three miles away.

Each of the four process buildings has a dedicated switchyard. Electrical power comes into the plant at 161,000 volts through 18 overhead transmission lines: 12 from the Tennessee Valley Authority's Shawnee Steam Plant and 6 from Electric Energy, Inc.'s Joppa, Illinois, facility. At present, power for PGDP is primarily purchased from TVA. Power flows through more than 80 circuit breakers to 35 large transformers located throughout the plant. The plant has a nameplate capacity of 3040 MW, but power use typically ranges between 700 MW and 2000 MW.

More than 90% of the power consumed by the gaseous diffusion enrichment process is rejected as the waste heat of compression. This waste heat maintains the process building temperatures. In addition, recirculating heating water provides heat for an additional nine buildings at PGDP. Steps must be taken to provide alternate sources of heat or to winterize the buildings if the uranium enrichment process is not operational.

A steam plant produces steam which is used to vaporize UF_6, maintain process temperatures, clean equipment, and provide heat for other miscellaneous buildings and process operations. The steam plant uses approximately 35,000 tons of coal annually. Functional PGDP systems include the R114 (Freon) system, high-pressure fire water system, recirculating cooling water system, ventilation systems, auxiliary power system, cell trip cascade motor shut-down system, and a gas leak detection system. PGDP also has its own water treatment plant and sewage treatment plant.

Larger support buildings include the Maintenance and Stores building, with more than 335,000 ft^2 of floor space. This building contains high-bay and low-bay areas, metal fabrication and machining equipment (including 72 milling machines), overhead crane bays, facilities for testing and rebuilding electric motors, climate-controlled shop areas for precision work, electronic-repair facilities, and paint-spraying facilities. The maintenance facilities can support activities from heavy equipment fabrication to intricate parts assembly manufacturing. The PGDP Chemical Operations Facility provides cleaning and decontamination services for the plant. The plant's laboratory facilities support more than 100,000 types of analytical tests per year, including analysis for metals, radionuclides, organics, inorganics, volatiles, and semi-volatiles. Media types processed through the laboratory include groundwater, concrete, soil, air, and wastewaters.

More detailed information on the PGDP facilities is available on request.

ATTACHMENT 2

CONDITIONS, CONSIDERATIONS, AND EOI SUBMITTAL REQUIREMENTS FOR THE PGDP FACILITIES

CONDITIONS

The following is a list of conditions that would have to be met in the EOI. The inclusion of this list is not exclusive, but represents the significant conditions known at this time.

a. Any sale, exchange, or transfer must be in compliance with applicable laws and regulations.
b. The respondent must have an NRC license or an arrangement with an NRC licensee to operate the PGDP for purposes of uranium enrichment and/or to possess and/or store uranium materials, as applicable.
c. Any Respondent must be able to successfully obtain a positive Foreign, Ownership, Control, or Influence (FOCI) determination, if applicable.

CONSIDERATIONS

DOE will be evaluating the EOIs based on several considerations including, but not limited to, the following:

a. Ability to obtain an NRC license or an arrangement with an NRC licensee if there is intent to operate PGDP as an enrichment facility or other nuclear operations facility.
b. Ability to support national security requirements if applicable.
c. Previous experience with operation of nuclear facilities, especially uranium enrichment facilities if there is intent to operate PGDP as an enrichment facility or other nuclear operations facility.

SUBMITTAL REQUIREMENTS

The EOI must include all necessary information to allow DOE to complete its evaluation. The EOI must contain at a minimum the following information:

a. The name, address and DUNS number of the Respondent.
b. Contact information (name, title, e-mail, telephone number) of the individual who shall act as the Respondent's point of contact with DOE for further information requests and further solicitations, if any.
c. A brief description of the Respondent, business lines, organization, mission, affiliates, objectives, location(s), years in business, and a list of previous business names, if any.
d. A specific and complete description of the proposed project, including an estimate of costs, total value, and if applicable, any use of the uranium materials as part of the project.
e. End user, if known and evidence of appropriate permits and licenses.
f. Proposed date when title and/or possession of the subject facilities and/or equipment will transfer from DOE.

g. Regulatory strategy and proposed schedule to ensure the safe and secure transfer of the facilities from USEC or DOE, as applicable, to the Respondent, including obtaining any applicable Nuclear Regulatory Commission license.
h. The value and/or economic benefit to be provided to the government for the subject facilities and/or equipment.
i. Complete description of how the conditions outlined in this document would be satisfied.
j. Any additional information that would assist in the evaluation of the EOI.

Responses can be provided by e-mail to Robert.Edwards@lex.doe.gov, or by mail to:

Robert Edwards
US Dept. of Energy
1017 Majestic Drive
Lexington, KY 40513

Responses must be submitted by February 21st, 2013.

Neither the expression of your organization's interest, nor the submission of your response to the EOI and any documents or other information supplied by you, discussions, meetings, or other communication between your organization and DOE shall impose any obligation on DOE including, but not limited to, entering into any agreement. Any and all costs associated with the preparation and submission of an EOI shall be the sole responsibility of the Respondents. DOE may request additional information as a result of this notice. This may include one-on-one discussions with companies that respond, or a written response to questions.

The Respondent should limit the submission of business sensitive or proprietary information in the response. However, to the extent that such information must be provided to submit a complete response, the Respondent must clearly mark such information. Further, Respondent acknowledges that any or all of the information provided may be shared within the DOE or DOE support contractors that have executed the appropriate non-disclosure agreements. DOE shall handle the information in accordance with applicable laws and regulations.

ATTACHMENT 3

SUMMARY OF DUF_6 AND UF_6 IN CYLINDERS AT PGDP AND PORTS

Table 3a. Summary of DUF_6 Cylinders

PGDP DUF_6			PORTS DUF_6		
Assay Range	**Cylinders**	**Total MTU**	**Assay Range**	**Cylinders**	**Total MTU**
.341 - .35	4,071	34,880.75	.341 - .35	2,135	17,982.21
.351 - .36	2,135	18,296.44	.351 - .36	3,051	25,705.60
.361 - .38	147	1,259.74	.361 - .38	64	513.99
.381 - .40	520	4,455.66	.381 - .40	477	3,956.64
.401 - .42	51	437.1	.401 - .42	519	4,306.15
.421 - .44	1	8.57	.421 - .44	48	387.97
.441 - .45	52	436.18	.441 - .45	3	20.94
.451 - .46	59	498.37	.451 - .46	2	17.02
.461 - .48	1	8.57	.461 - .48	3	19.04
.481 - .50	1	0.51	.481 - .50	0	0
.501 - .52	0	0	.501 - .52	17	136.27
.521 - .54	0	0	.521 - .54	40	337.18
.561 - .58	0	0	.561 - .58	1	8.58
.581 - .60	0	0	.581 - .60	1	8.58
.641 - .66	53	335	.641 - .66	2	10.02
.661 - .706	0	0	.661 - .706	2	4.35
Total	7,091	60,617	Total	6,365	53,415

There is approximately 300,000 MTU of low-assay DUF_6 at PGDP and 110,000 MTU of low-assay DUF_6 at PORTS within the assay ranges of 0.15% to 0.34% that is also available. More detailed information on this low-assay material, or the table below, is available on request.

Table 3b. Assays/Amounts of Off-Specification Enriched and Normal UF_6 Inventory

Location	Average Assay	Cylinders	Total MTU
PORTS Enriched	1.60%	112	167
PORTS Normal	0.71%	2	10
PGDP Enriched	1.00%	125	929
Total		239	1,106

ATTACHMENT 4

CONDITIONS, CONSIDERATIONS, AND SUBMITTAL REQUIREMENTS FOR EOIs FOR THE PURCHASE, EXCHANGE, OR TRANSFER OF URANIUM

CONDITIONS

The following is a list of conditions that would have to be met in the EOI. The inclusion of this list is not exclusive, but represents the significant conditions known at this time.

a. Any sale, exchange, or transfer must be in compliance with applicable laws and regulations, including Section 3112(d) of the USEC Privatization Act, as applicable.
b. Upon purchase, exchange, or transfer, DOE will not retain, nor be responsible for, any direct, consequential, or other liability related to processing, contamination, transportation, or disposal of any waste associated with the high-assay DUF_6, off-specification UF_6, low-assay DUF_6, or cylinders, including any liability from contaminants in the off-specification materials.
c. DOE will not bear any costs associated with sale, exchange, or transfer. Any associated costs include, but are not limited to, sampling, preparing, loading, and transporting the cylinders.
d. The respondent must have an NRC license or an arrangement with an NRC licensee to possess the DUF_6 or off-specification UF_6.
e. Any Respondent must be able to successfully obtain a positive FOCI determination, if applicable.

CONSIDERATIONS

DOE will be evaluating the EOIs based on several considerations including, but not limited to, the following:

a. The overall value or economic benefit offered for the DUF_6 or off-specification UF_6.
b. The potential for any adverse material impact on the domestic uranium market associated with the sale or transfer of material when considered with any other DOE on-going actions that potentially impact the market.

SUBMITTAL REQUIREMENTS

The EOI must include all necessary information to allow DOE to complete its evaluation. The EOI must contain at a minimum the following information:

a. The name, address, and DUNS number of the Respondent.
b. Contact information (name, title, e-mail, telephone number) of the individual who shall act as the Respondent's point of contact with DOE for further information requests and further solicitations, if any.
c. A brief description of the Respondent, business lines, organization, mission, affiliates, objectives, location(s), years in business, and a list of previous business names, if any.
d. A specific and complete description of the proposed project, including an estimate of costs, total value, and if applicable, any use of the PGDP facilities as part of the project.

e. End user, if known and evidence of appropriate permits and licenses.
f. The type (high-assay DUF_6, off-specification UF_6, or low-assay DUF_6), amount, and assay range of material (MTU/ kilograms) desired.
g. Proposed date when title and/or possession of the DUF_6 and/or off-specification UF_6 would transfer from DOE.
h. The value and/or economic benefit to be provided to the government for the DUF_6 and/or off-specification UF_6.
i. Sufficient information on potential uses of the uranium to assist DOE in evaluating, as necessary, any potential adverse material impacts on the domestic uranium market.
j. Complete description of how the conditions outlined in this document would be satisfied.
k. Any additional information that would assist in the evaluation of the EOI.

Responses can be provided by e-mail to Robert.Edwards@lex.doe.gov, or by mail to:

Robert Edwards
US Dept. of Energy
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Lexington, KY 40513

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The Respondent should limit the submission of business sensitive or proprietary information in the response. However, to the extent that such information must be provided to submit a complete response, the Respondent must clearly mark such information. Further, Respondent acknowledges that any or all of the information provided may be shared with DOE or DOE support contractors that have executed the appropriate non-disclosure agreements. DOE shall handle the information in accordance with applicable laws and regulations.