Private ISF

From: Joy Russell <j.russell@holtec.com>
Sent: Friday, January 27, 2017 5:37 PM
To: PrivateISF
Subject: Response to RFI on Private Initiatives to Develop Consolidated SNF Storage Facilities
Attachments: Holtec International Response to DOE RFI on Private Initiatives 01272017.pdf

Dear Mr. Griffith:

Holtec International is pleased to have this opportunity to provide our responses to the DOE Request for Information on Private Initiatives to Develop Consolidated Interim Storage Facilities. We look forward to working with the Department of Energy on this very important project.

Regards,

Joy

****

Joy Russell
Vice President, Corporate Business Development

Holtec International

One Holtec Drive

Marlton, NJ 08053

Office: (856) 797-0900 Ext. 3655
Cell: (856) 296-9207
FAX: (856) 797-0909
Email: j.russell@holtec.com <mailto:j.russell@holtec.com>

HOLTEC INTERNATIONAL URL: http://www.holtecinternational.com <http://www.holtecinternational.com/>

HOLTEC INTERNATIONAL

Holtec Center, One Holtec Drive, Marlton, NJ 08053
Telephone (856) 797-0900
Fax (856) 797-0909

January 27, 2017

Department of Energy
Office of Nuclear Energy

Attention: Mr. Andrew Griffith E-Mail: *PrivateISF@hq.doe.gov*

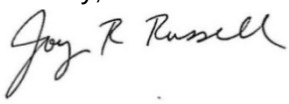
References: DOE Request For Information On Private Initiatives To Develop Consolidated Interim Storage Facilities

Subject: Holtec International Response to the DOE RFI

Dear Mr. Griffith:

Holtec International is pleased to have this opportunity to provide our responses to the DOE Request for Information on Private Initiatives to Develop Consolidated Interim Storage Facilities. We look forward to working with the Department of Energy on this very important project.

Sincerely,



Joy R. Russell
Vice President, Corporate Business Development
Office: 856-797-0900, Ext. 3655; E-mail: J.Russell@holtec.com

Document ID: 300877aa

Holtec International's Response to DOE's Request for Information on Private Initiatives to Develop Consolidated Interim Storage Facilities

Holtec International is pleased to provide the Company's response to DOE's Request for Information (RFI) on the subject of private initiative (PI) to develop Consolidated Interim Storage (CIS) Facilities to establish one or more consolidated interim storage facilities for used nuclear fuel and high level waste. Implementation of the Holtec proposed DOE CISF strategy herein provides the means to:

1. Begin removing used fuel from reactor sites much sooner than awaiting completion of a repository,
2. Provide a highly cost efficient away-from-reactor (AFR) storage mode that would replace the individually expensive (up to $8-9mm/yr.) used fuel storage cost reimbursements to over 80 individual ISFI sites with a single set of costs for a consolidated facility with an enormously improved CIS cost/canister efficiency,
3. Eliminate the stakeholder and political challenges associated with reactor-site used fuel storage by relocation to a site that has strong local and regional consent and support,
4. Avoid costly distractions of utility claims management and associated stakeholder frustrations from the US Government, and
5. Increases the time available to prepare a repository for used fuel disposal by providing a viable, safe economical, long term storage facility supporting DOE's Nuclear Waste Policy Act obligations.

Holtec provides on-site dry storage to a majority of US nuclear units and has been actively pursuing the development of a CIS in New Mexico in a public-private partnership (PPP) with the Eddie Lea Energy Alliance (ELEA), LLC. The owners of ELEA are the counties of Eddy and Lea, and cities of Carlsbad and Hobbs. ELEA is a corporate entity owned by the counties and neighboring cities that constitute the region surrounding the proposed host site having strong support from both community and state leadership. Holtec will design, license, build and operate the storage facility to be known as HI-STORE, which will be an enlarged version of the HI-STORM UMAX (acronym for Underground MAXimum security) system that is already deployed at two nuclear plants in the United States. ELEA has the CISF property available and will contribute the extensive site characterization data from its archives and serve the critical role of continuing community outreach. As an active sponsor of the HI-STORE PPP, Holtec has a vital stake in the path of action adopted by the government. We recommend a range of potential DOE roles in the development and support of the CISF as further discussed below.

These responses have been prepared in collaboration with our partner, ELEA, LLC. The responses provided below are informed by our four decades of involvement in our domestic spent fuel storage experience. Indeed, as the reader will discern, Holtec is committed to the success of the HI-STORE PPP and that the recommendations proposed herein will ultimately be adopted on their merits by DOE. The responses below offer an unprecedented opportunity for

DOE to participate in the HI-STORE PPP and, until then, our HI-STORE CIS program in New Mexico forges along on the strength of our private investment and the hope that our government will act decisively to take an important role.

RFI #1: ***What key factors should be considered to ensure that PIs, as part of the overall integrated nuclear waste management system, would provide a workable solution for interim storage of spent nuclear fuel and high-level waste?***

We consider the following factors to be essential parameters that will divine the success of any consolidated interim storage (CIS) program as envisioned in DOE's January 2013 policy statement:

a. Engage a PI that has consistently demonstrated success in the engineer, procurement and design (EPC) and the operations and maintenance (O&M) of used fuel storage facilities.

b. Engage a PI having sufficient resources and financial investment in and commitment to the project to embody the principles of consent-based siting and obviate the challenges of local opposition.

c. Implementation of a DOE-PI business model (such as a PPP) that incentivizes and provides accountability for performance while providing sufficient capitalization and operational resources, and support.

d. Implementation of a CISF EPC and O&M strategy that capitalizes on the away-from-reactor CISF's significantly lower total system life cycle cost than that of over 80 at-reactor storage sites.

e. Select a site that does not have a disqualifying or otherwise contentious safety or licensing flaw (seismic, tornado, flooding, soil stability, emergency planning, etc.) to preclude impacts and complications in EPC, licensing, and stakeholder relations (e.g. seismic issues at the PFS AFR, the Yucca Mountain Repository, the 2011 North Anna ISFSI seismic event).

f. Ensure that the CIS is robust and capable of unquestionably protecting public health and safety for severe design basis external man-induced events (10 CFR 72.94) such as an airliner crash into the storage systems (e.g. late imposition of an issue by the Atomic Safety and Licensing Board for the PFS AFR and an accident consideration at reactor site ISFSIs) or radiological sabotage and terrorism.

g. Ensure that the necessary rail access to the site can be built without significant physical or legal impediments, (e.g. the denial of the 12-mile rail extension thru the tribal lands controlled by U.S. Bureau of Land Management ultimately killed the prospects of PFS' AFR in Skull Valley, Utah).

h. Make sure that the population density near and around site is very, very low. (We consider the acceptable threshold to be 25 persons in the 2-square mile area around the storage systems; less than 500 persons in 20 square miles around the storage facility).

RFI #2: ***How could a PI benefit: (a) the local community and state or Tribe in which an ISF is sited; and (b) neighboring communities?***

The private initiative (PI) will benefit the local and neighboring communities in several ways:

a. Through a revenue sharing program with the state and the host region through the PPP, evolving from the use of public lands, transportation and access routes, and other community partnership initiatives.

b. Providing a financially stable and durable project as a source of employment and a use of local and regional goods and services that will incubate business growth.

c. Through new jobs needed to design, build, manage and operate the HI-STORE CIS facility. Most hires will be local residents.

    i. Through large EPC capital expenditures requiring significant employment and engagement of the local labor pool and businesses.

    ii. Research and maintenance jobs resulting from fuel and canister aging considerations.

    iii. Rail car and transport cask maintenance activity.

    iv. If necessary, sizing and repackaging location for fuel going to a repository with the CISF as the "front end" for a repository feed stream

d. Through the establishment by Holtec of a locally established, centralized national training center where technicians and craftsmen will be trained to perform dry storage system loading and handling at the HI-STORE CIS as well as training of personnel performing these operations at the 100-plus nuclear plants that use Holtec's dry storage systems to store their used nuclear fuel.

We expect that the HI-STORE CIS facility will become the nucleus for spawning new business and industries in the ELEA territory over the near- and long-term.

RFI #3: ***What type of involvement, if any, should the Department or other federal agency consider having with the PI and the community regarding organizational, structural, and contractual frameworks and why?***

The HI-STORE PPP and private enterprise initiatives begun in New Mexico (Holtec) and Texas (WCS) respectively provide an unprecedented opportunity to DOE to make good on the government's long standing promise to defuel nuclear plant sites. It is now evident that the dry storage technology has matured to the point that the fuel is being stored in-the-ground in impregnable silos which accrete virtually zero radiation dose and essentially preclude the risk of harm from the modern-day scourge called terrorism.

Today, away-from-reactor (AFR) storage *is a problem that is not*. Nuclear power's Achilles heel, used fuel and high level waste stranded at the existing nuclear plants, will vanish as a millstone around the neck of the nuclear industry if the Government begins to provide material support to the ongoing PIs (and others). Such support must be contingent on material proof of tangible progress and carry the responsibility of full refund to the public treasury if the Contractor fails to deliver on his commitments. In this regard, we recommend that the Government's role should be to set the goals and priorities and to allow the PIs to complete the licensing process.

A number of potential business models are available which are consistent with the "Key Factors" in Item #1 above and make fiscal sense with respect to maximizing the application of funds to expeditious CISF availability and reliable operation. The following do not represent all possible variations of business models but are only exemplars. They are not necessarily in any order of preference.

1. <u>Traditional DOE Capital Asset Acquisition and Management</u>

DOE's direct capital funding of the CISF EPC with heavily incentivized performance and construction completion consistent with DOE's capital asset acquisition and management programs.

a. DOE funds the EPC project phase, owns the facility and enters a long term, performance based O&M contract with Holtec.

b. The PI enterprise (HI-STORE PPP) holds the NRC license for the facility; DOE retains title to the fuel.

c. We further suggest that DOE offer to provide 60% of the cost to secure the NRC license after the NRC accepts the license application package for review subject to the two conditions noted below (The NRC's provisional acceptance is a definitive indicator that the application is prima facie meritorious. Requiring the applicant to front 40% of the cost will incentivize the applicant to finish the licensing process). The remainder 40% will be reimbursed to the applicant *after the license has been granted. Conditions:*

Condition 1: The host community and the State have issued official resolutions indicating strong support for the CIS.

Condition 2: The applicant agrees to refund all support funds to the DOE if the license application does not result in a license.

Condition 3: *DOE agrees to provide a uniform package of incentives to state and communities. DOE should provide the same monetary and other incentives to any state and community hosting a facility. By doing so it insures the long term support of the state and community in a contractual relationship. Furthermore, by providing fixed incentives to all potential hosts, DOE eliminates states and communities from withdrawing as a host because the benefit can deteriorate during s bidding process.*

We think the above approach is necessary and desirable because licensing an AFR has been historically quite expensive - the PFS, LLC license tallied up over $80 million dollars in costs in an effort that ended over a decade ago.

2. Public-Private Partnership with DOE Participation

DOE becomes an "equity partner" in ELEA (a common element of PPPs for other domestic and international infrastructure projects) and participates in the CISF funding and financial relationships while retaining their separate responsibility for eventual disposal of the used fuel and its attendant transfer, storage and disposal costs.

3. HI-STORE PPP with DOE as Long Term Lessor

Holtec designs, constructs and operates the facility with DOE as "permanent" Lessor via a long-term lease agreement (permits DOE to "take possession" or transfer possession of the used fuel).

4. HI-STORE PPP with Fuel Owners as Long Term Lessors/Tenants

Holtec designs, constructs and operates the facility with used fuel owners as "tenants" with 10 CFR 961 Standard Contract settlement terms and cost reimbursement remaining a utility-DOE issue flowing to Holtec as revenue.

DOE's adoption of the one of above approaches or a variant will help accelerate the EPC and licensing efforts by the entrepreneurial PIs. At present, the intensity of our HI-STORE effort has been subdued by the uncertainty of government support. DOE positive engagement in the program will significantly accelerate our efforts.

Hopefully, the above approach will help spur additional PIs giving the government the opportunity to attract competitive PIs for bringing the AFRs on line and operating them.

We also call upon the DOE to engage itself with the potential host communities and PIs now to signal its intention to bring about the CIS facilities using the magic of the market place. DOE's public outreach efforts should also be directed towards educating the local populations and community activists on the subject of the benign nature of the interim storage technologies.

RFI #4: ***What are the benefits and drawbacks of a PI, compared to a federally-financed capital project resulting in a government-owned contractor-operated (GOCO) interim storage facility?***

Development of the CISF as a private or PPP enterprise provides several distinct advantages over a traditional DOE GOCO that involves imposition of the Department's capital asset acquisition and management programs. These advantages include:

1. PI use of more industry-traditional project management and EPC tools that are not necessarily subject to the administrative limitations of federal procurement, project management, and asset acquisition provisions (e.g. DOE Order 413.3, Program and Project Management for the Acquisition of Capital Assets and its ~60 references). Although these latter provisions are needed to assure fidelity with statutory and internal requirements imposed on the Department, they add a substantial time and money burden to a large capital project that would not be present in a non-governmental project.

2. Engagement of a PI having a CIS base design that has been licensed, built and demonstrated successfully by industry implementation permits the project to essentially be a turnkey effort, avoiding either a) the burden of government capital asset acquisition fiscal and technical decision making controls placed on a federal EPC project, or b) the burden of a complex, very time consuming fixed scope/fixed price procurement that traditionally requires years from concept to the government's award.

3. Engaging a PI that is part of a PPP provides an opportunity for the US Government to provide substantial capitalization support and cost management without the full burden of the aforementioned procurement, project management, and asset acquisition controls.

4. Packaging the PI's engagement as the EPC contractor and partner with the long term (life of the facility) contract as its operator provides a basis for creative financial management over the life of the facility, permitting the various business models discussed under RFI #3.

The lessons from a number of prior and ongoing DOE capital asset acquisition programs (e.g. Yucca Mountain, the MPC Program, the Waste Treatment Plant) involving the scrutiny and impediments to funding and fiscal and technical decision making that such projects receive from DOE, Congress and other stakeholders.

History further reinforces our belief that the government's policy should stand at the commanding heights of the national program, setting clear goals and objectives without getting enmeshed in actually carrying it out. Let America's proven capitalist marketplace that allocates rewards proportional to the risk do its magic. In this model, the government sets down the goals, risks and rewards, solicits proposals, and the private enterprise responds with its competing proposals. Pragmatic involvement in the process by the government is critical to this model.

Done adroitly, like the Swiss government managed the rebirth of its watch industry in the 1970s in the face of assault from foreign purveyors of digital watches, it can be a big winner for the country. In short, the Government's role should be to set the goals, establish a risk/reward based compensation, ensure that the public health and safety will not be affected and otherwise stay out of the way.

The key elements of this model applied to the CIS as follows and would be in conjunction with the response to RFI#3:

a. The government participates in project capitalization with those companies that have shown a commitment to pursue the program (to avoid opportunistic entrants).

b. DOE places the long term responsibility for the storage system on the PI. It means the responsibility to ensure the fuel and containers from degradation in storage resides with the PI (this will prevent poor quality designs or shabby construction from intruding into the program).

c. Strive to secure participation from at least two competent PIs.

d. Let the NRC regulate the design & construction and operation; let DOE capitalize or reimburse the Contractor (only) for acceptable work.

e. Ensure that the Contractor has his proverbial "skin in the game" at all times.

There are no substantive drawbacks to a PI compared to a federally-financed capital, GOCO project beyond the need to establish an appropriate business model with appropriately constrained and incentivized contractual relationships. A PPP would require development of a customized business model and framework for which DOE has had prior experience, e.g. successfully applied PPPs through the DOE Office of Energy Efficiency and Renewable Energy.

RFI #5: ***What assurances to the Government do you think would be appropriate, to ensure that SNF stored at a private ISF, would be managed effectively so as to contain costs to the Government?***

The government can shield itself from poor management and cost overruns by holding the selected PIs financially responsible for shortcomings in their specified performance.

Towards this end, the government should seek to fix its cost for each constituent element of its total cost with a reasonable escalators applied to time-variant costs. Broadly speaking, the total cost to the Government to establish and operate a CIS can be subdivided into the following elements:

a. Fees: Fees paid to the host State and local communities - this can be negotiated upfront.

b. Licensing: Licensing costs including environmental qualification, hazards analysis and related costs: Start to pay a substantial fraction of the cost incurred after the Contractor's license application has been docketed and accepted by the NRC. (This will weed out opportunistic contract seekers). The balance is paid after the license is secured by the Contractor. Limit the total cost to the government to $60 million (Substantially less than that spent by PFS, LLC in the 1997-2005 period on the Skull Valley, Utah AFR in inflation adjusted dollars). The funding cap will promote efficiency and curtail waste.

c. EPC cost to design, build and commission the facility: Get a firmly defined quote from each PI to build and commission the facility tied to 2017 dollars. Negotiate and peer into the Contractor's proposal to get a transparent cost basis. This should also consider cost of equipment, i.e. have the contractor quote a fixed price for all equipment that will be needed at the CIS.

d. Packaging and transport costs: Require each Contractor to provide auditable quotations for the fuel transport services.

e. Normal operation and maintenance cost: The cost of operating the facility should be secured on an inflation moderated fixed cost basis. The Contractor must bear the risk if the storage system fails to meet NRC's acceptance criteria throughout the facility's service life. (This point is critical to ensure that the contractor is confident of the quality of his systems. DOE should not be responsible for the Contractor's inadequacies).

f. Security: The cost of security features, program implementation, staff training, etc. should be secured on an inflation moderated fixed cost basis.

g. Administrative:

    i. Cost of insurance and other G &A burden.

    ii. Intellectual property fees

h. Extenuating events related cost: A devastating terrorist attack greater in magnitude than that for which the site is certified by the NRC is the only scenario where DOE will have additional unquantifiable cost exposure.

RFI #6: ***What possibilities are there with respect to business models for a PI, and what are the benefits and disadvantages of those models?***

The PI model that is apt to yield the best results for the country should have the following features:

a. DOE specifies clear goals and objectives without getting enmeshed in actually carrying it out, namely licensing, construction, safe transportation to and safe storage of used nuclear fuel at a CIS in an NRC approved facility. As provided in response to RFI #5 above, the government should seek a fixed cost for each of the constituent elements of its total cost with a reasonable escalator applied to time-variant costs with the PI bearing the cost of any system mal-performance in the absence of an extenuating event.

b. The PI should be responsible for the procurement of all equipment (including transportation casks and rail cars).

c. Dry storage being a mature industry, it is ok for the Government to negotiate a contract that is fix priced with escalation provisions (which depend on the course of the national economy and are thus unpredictable).

d. The PI is made responsible to maintain the integrity of the stored fuel at the site under his watch. (This is based on the logic that the contractor has design and operational measures that he can implement to protect the long-term integrity of the fuel; the government does not).

e. The Government should provide assistance with public outreach for transportation.

RFI #7: How could a PI manage liabilities that might arise during the storage period?

The PI, like any business, will provide for the contingencies in his selling price that would factor in future liabilities. The PI may purchase insurance to limit his liability exposure.

RFI #8: What state/local/tribal authorizations/approvals would be needed?

The CIS will need consent of the State and the local communities. If the rail spur to be built to connect the site goes through any private or public lands, the owner of the land must be agreeable to sell his property rights. Any rail link passing through Indian reservation will need tribal and federal consent (BLM).

RFI #9: How can the Government continue to explore or implement the PI concept in a fair, open and transparent manner going forward?

The Government should lay out its PI-based CIS development plan through blogs and public meetings. All steps in the PI engagement process must be transparent and devoid of political influence to the extent possible.

RFI #10: What, if any, supporting agreements might be expected between the Government and the host state/tribe/local community associated with a PI?

We think the PI as the owner and operator of the CIS should reach agreements with all affected stakeholders. The government, representing the interests of the people, may play a supportive and interlocutory role.

RFI #11: What other considerations should be taken into account?

Before embarking on supporting any PI, the DOE should ensure that:

a. The CIS facility has a strong plurality of local community support and acquiescence of the state government.

b. The CIS facility will be located on a stable geological formation and in a low earthquake zone and be free of the risk of natural hazards such as a tsunami.

c. The used nuclear fuel should be stored in a terrorism-resistant storage system that can be further hardened at a moderate expense if the threat of terror were to increase in the future.

d. The CIS should have a minimum service life of 300 years.

RFI #12: Are there any alternative approaches to developing non-federally-owned facilities that might be proposed (e.g. how projects would be financed, anticipated regulatory and legal issues, etc.). If so, what are they, are there proposed solution, and how would the above questions be answered with respect to such approaches?

Guided by prior experience, we believe that a federally owned facility will not be as viable a proposition as the other non-GOCO business models. In our view, the designer, developer, operator and owner of the facility must be a non-governmental entity that has the necessary expertise to establish a safe, reliable and secure facility. Having a single entity PI would also eliminate the chance for finger pointing if the program goes awry.