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Form **990-PF**

Department of the Treasury
Internal Revenue Service

Return of Private Foundation
or Section 4947(a)(1) Trust Treated as Private Foundation

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▶ **Information about Form 990-PF and its instructions is at www.irs.gov/form990pf.**

OMB No 1545-0052

2013

Open to Public Inspection

For calendar year 2013, or tax year beginning 01-01-2013 , and ending 12-31-2013

Name of foundation FUSION POWER ASSOCIATES		A Employer identification number 52-1162794
Number and street (or P O box number if mail is not delivered to street address) 2 PROFESSIONAL DRIVE	Room/suite	B Telephone number (see instructions) (301) 258-0545
City or town, state or province, country, and ZIP or foreign postal code GATHERSBURG, MD 20878		C If exemption application is pending, check here <input type="checkbox"/>
G Check all that apply: <input type="checkbox"/> Initial return <input type="checkbox"/> Initial return of a former public charity <input type="checkbox"/> Final return <input type="checkbox"/> Amended return <input type="checkbox"/> Address change <input type="checkbox"/> Name change		D 1. Foreign organizations, check here <input type="checkbox"/> 2. Foreign organizations meeting the 85% test, check here and attach computation <input type="checkbox"/>
H Check type of organization: <input checked="" type="checkbox"/> Section 501(c)(3) exempt private foundation <input type="checkbox"/> Section 4947(a)(1) nonexempt charitable trust <input type="checkbox"/> Other taxable private foundation		E If private foundation status was terminated under section 507(b)(1)(A), check here <input type="checkbox"/>
I Fair market value of all assets at end of year (from Part II, col. (c), line 16) ▶ \$ 421,029	J Accounting method: <input type="checkbox"/> Cash <input checked="" type="checkbox"/> Accrual <input type="checkbox"/> Other (specify) _____ (Part I, column (d) must be on cash basis.)	F If the foundation is in a 60-month termination under section 507(b)(1)(B), check here <input type="checkbox"/>

Part I Analysis of Revenue and Expenses <i>(The total of amounts in columns (b), (c), and (d) may not necessarily equal the amounts in column (a) (see instructions))</i>		(a) Revenue and expenses per books	(b) Net investment income	(c) Adjusted net income	(d) Disbursements for charitable purposes (cash basis only)
Revenue	1 Contributions, gifts, grants, etc , received (attach schedule)	8,694			
	2 Check <input type="checkbox"/> if the foundation is not required to attach Sch B				
	3 Interest on savings and temporary cash investments	12	12	12	
	4 Dividends and interest from securities.	1,162	1,162	1,162	
	5a Gross rents				
	b Net rental income or (loss) _____				
	6a Net gain or (loss) from sale of assets not on line 10 <input checked="" type="checkbox"/>	2,175			
	b Gross sales price for all assets on line 6a 2,175				
	7 Capital gain net income (from Part IV, line 2)				
	8 Net short-term capital gain				
	9 Income modifications				
	10a Gross sales less returns and allowances				
b Less Cost of goods sold					
c Gross profit or (loss) (attach schedule)					
11 Other income (attach schedule) <input checked="" type="checkbox"/>	86,719		86,719		
12 Total. Add lines 1 through 11	98,762	1,174	87,893		
Operating and Administrative Expenses	13 Compensation of officers, directors, trustees, etc	45,160			
	14 Other employee salaries and wages				
	15 Pension plans, employee benefits				
	16a Legal fees (attach schedule) <input checked="" type="checkbox"/>	145			
	b Accounting fees (attach schedule) <input checked="" type="checkbox"/>	950			
	c Other professional fees (attach schedule)				
	17 Interest				
	18 Taxes (attach schedule) (see instructions) <input checked="" type="checkbox"/>	5,350			
	19 Depreciation (attach schedule) and depletion <input checked="" type="checkbox"/>	2,580			
	20 Occupancy	6,537			
	21 Travel, conferences, and meetings	13,287			
	22 Printing and publications	226			
23 Other expenses (attach schedule) <input checked="" type="checkbox"/>	22,081				
24 Total operating and administrative expenses.					
Add lines 13 through 23	96,316	0		0	
25 Contributions, gifts, grants paid	0			0	
26 Total expenses and disbursements. Add lines 24 and 25	96,316	0		0	
27 Subtract line 26 from line 12					
a Excess of revenue over expenses and disbursements	2,446				
b Net investment income (if negative, enter -0-)		1,174			
c Adjusted net income (if negative, enter -0-)			87,893		

Attached schedules and amounts in the description column should be for end-of-year amounts only (See instructions)

Part II Balance Sheets		Beginning of year		End of year	
		(a) Book Value	(b) Book Value	(c) Fair Market Value	
Assets	1 Cash—non-interest-bearing	42,416	55,942	55,942	
	2 Savings and temporary cash investments	92,338	85,687	85,687	
	3 Accounts receivable ▶ <u>8,400</u>				
	Less allowance for doubtful accounts ▶ _____	10,200	8,400	8,400	
	4 Pledges receivable ▶ _____				
	Less allowance for doubtful accounts ▶ _____				
	5 Grants receivable				
	6 Receivables due from officers, directors, trustees, and other disqualified persons (attach schedule) (see instructions)				
	7 Other notes and loans receivable (attach schedule) ▶ _____				
	Less allowance for doubtful accounts ▶ _____				
	8 Inventories for sale or use				
	9 Prepaid expenses and deferred charges				
	10a Investments—U S and state government obligations (attach schedule)				
	b Investments—corporate stock (attach schedule)				
	c Investments—corporate bonds (attach schedule)				
	11 Investments—land, buildings, and equipment basis ▶ _____				
Less accumulated depreciation (attach schedule) ▶ _____					
12 Investments—mortgage loans					
13 Investments—other (attach schedule)					
14 Land, buildings, and equipment basis ▶ <u>169,374</u>					
Less accumulated depreciation (attach schedule) ▶ <u>108,699</u>	63,255	60,675	271,000		
15 Other assets (describe ▶ _____)					
16 Total assets (to be completed by all filers—see the instructions Also, see page 1, item I)	208,209	210,704	421,029		
Liabilities	17 Accounts payable and accrued expenses	1,243	1,135		
	18 Grants payable				
	19 Deferred revenue	78,259	78,416		
	20 Loans from officers, directors, trustees, and other disqualified persons				
	21 Mortgages and other notes payable (attach schedule)				
	22 Other liabilities (describe ▶ _____)				
23 Total liabilities (add lines 17 through 22)	79,502	79,551			
Net Assets or Fund Balances	Foundations that follow SFAS 117, check here ▶ <input checked="" type="checkbox"/>				
	and complete lines 24 through 26 and lines 30 and 31.				
	24 Unrestricted	128,707	131,153		
	25 Temporarily restricted				
	26 Permanently restricted				
	Foundations that do not follow SFAS 117, check here ▶ <input type="checkbox"/>				
	and complete lines 27 through 31.				
	27 Capital stock, trust principal, or current funds				
28 Paid-in or capital surplus, or land, bldg, and equipment fund					
29 Retained earnings, accumulated income, endowment, or other funds					
30 Total net assets or fund balances (see page 17 of the instructions)	128,707	131,153			
31 Total liabilities and net assets/fund balances (see page 17 of the instructions)	208,209	210,704			

Part III Analysis of Changes in Net Assets or Fund Balances

1	Total net assets or fund balances at beginning of year—Part II, column (a), line 30 (must agree with end-of-year figure reported on prior year's return)	1	128,707
2	Enter amount from Part I, line 27a	2	2,446
3	Other increases not included in line 2 (itemize) ▶ _____	3	
4	Add lines 1, 2, and 3	4	131,153
5	Decreases not included in line 2 (itemize) ▶ _____	5	
6	Total net assets or fund balances at end of year (line 4 minus line 5)—Part II, column (b), line 30	6	131,153

Part IV Capital Gains and Losses for Tax on Investment Income

(a) List and describe the kind(s) of property sold (e.g., real estate, 2-story brick warehouse, or common stock, 200 shs MLC Co)	(b) How acquired P—Purchase D—Donation	(c) Date acquired (mo, day, yr)	(d) Date sold (mo, day, yr)
1a			

(e) Gross sales price	(f) Depreciation allowed (or allowable)	(g) Cost or other basis plus expense of sale	(h) Gain or (loss) (e) plus (f) minus (g)
a			
b			
c			
d			
e			

Complete only for assets showing gain in column (h) and owned by the foundation on 12/31/69			(l) Gains (Col (h) gain minus col (k), but not less than -0-) or Losses (from col (h))
(i) FMV as of 12/31/69	(j) Adjusted basis as of 12/31/69	(k) Excess of col (i) over col (j), if any	
a			
b			
c			
d			
e			

2	Capital gain net income or (net capital loss)	$\left\{ \begin{array}{l} \text{If gain, also enter in Part I, line 7} \\ \text{If (loss), enter -0- in Part I, line 7} \end{array} \right\}$	2	
3	Net short-term capital gain or (loss) as defined in sections 1222(5) and (6)			
	If gain, also enter in Part I, line 8, column (c) (see instructions) If (loss), enter -0- in Part I, line 8	$\left. \begin{array}{l} \\ \\ \end{array} \right\}$	3	

Part V Qualification Under Section 4940(e) for Reduced Tax on Net Investment Income

(For optional use by domestic private foundations subject to the section 4940(a) tax on net investment income)

If section 4940(d)(2) applies, leave this part blank

Was the foundation liable for the section 4942 tax on the distributable amount of any year in the base period? Yes No
 If "Yes," the foundation does not qualify under section 4940(e) Do not complete this part

1 Enter the appropriate amount in each column for each year, see page 18 of the instructions before making any entries

(a) Base period years Calendar year (or tax year beginning in)	(b) Adjusted qualifying distributions	(c) Net value of noncharitable-use assets	(d) Distribution ratio (col (b) divided by col (c))
2012			
2011			
2010			
2009			
2008			

2	Total of line 1, column (d).	2	
3	Average distribution ratio for the 5-year base period—divide the total on line 2 by 5, or by the number of years the foundation has been in existence if less than 5 years	3	
4	Enter the net value of noncharitable-use assets for 2013 from Part X, line 5.	4	
5	Multiply line 4 by line 3.	5	
6	Enter 1% of net investment income (1% of Part I, line 27b).	6	
7	Add lines 5 and 6.	7	
8	Enter qualifying distributions from Part XII, line 4.	8	

If line 8 is equal to or greater than line 7, check the box in Part VI, line 1b, and complete that part using a 1% tax rate See the Part VI instructions

Part VI Excise Tax Based on Investment Income (Section 4940(a), 4940(b), 4940(e), or 4948—see page 18 of the instructions)

Table with 11 rows for excise tax calculations. Includes sub-rows 6a-6d for credits and payments. Total tax due is 23, overpayment is 0, and amount credited to 2014 tax is 0.

Part VII-A Statements Regarding Activities

Table with 10 rows of activity statements. Columns for question number, Yes, and No. Includes questions about political activities, unrelated business income, and substantial contributors.

Part VII-A Statements Regarding Activities (continued)

11	At any time during the year, did the foundation, directly or indirectly, own a controlled entity within the meaning of section 512(b)(13)? If "Yes," attach schedule (see instructions).	11	
12	Did the foundation make a distribution to a donor advised fund over which the foundation or a disqualified person had advisory privileges? If "Yes," attach statement (see instructions)	12	
13	Did the foundation comply with the public inspection requirements for its annual returns and exemption application? Website address WWW.FUSHIONPOWER.ORG	13	Yes
14	The books are in care of RUTH WATKINS Telephone no (301) 258-0545 Located at 2 PROFESSIONAL DRIVE GAITHERSBURG MD ZIP +4 20879		
15	Section 4947(a)(1) nonexempt charitable trusts filing Form 990-PF in lieu of Form 1041 —Check here <input type="checkbox"/> and enter the amount of tax-exempt interest received or accrued during the year.	15	
16	At any time during calendar year 2013, did the foundation have an interest in or a signature or other authority over a bank, securities, or other financial account in a foreign country? See instructions for exceptions and filing requirements for Form TD F 90-22.1 If "Yes", enter the name of the foreign country	16	Yes No

Part VII-B Statements Regarding Activities for Which Form 4720 May Be Required

File Form 4720 if any item is checked in the "Yes" column, unless an exception applies.			Yes	No
1a	During the year did the foundation (either directly or indirectly)			
	(1) Engage in the sale or exchange, or leasing of property with a disqualified person? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	(2) Borrow money from, lend money to, or otherwise extend credit to (or accept it from) a disqualified person? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	(3) Furnish goods, services, or facilities to (or accept them from) a disqualified person? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	(4) Pay compensation to, or pay or reimburse the expenses of, a disqualified person? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	(5) Transfer any income or assets to a disqualified person (or make any of either available for the benefit or use of a disqualified person)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	(6) Agree to pay money or property to a government official? (Exception. Check "No" if the foundation agreed to make a grant to or to employ the official for a period after termination of government service, if terminating within 90 days). <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
b	If any answer is "Yes" to 1a(1)–(6), did any of the acts fail to qualify under the exceptions described in Regulations section 53.4941(d)-3 or in a current notice regarding disaster assistance (see page 20 of the instructions)? Organizations relying on a current notice regarding disaster assistance check here. <input type="checkbox"/>	1b		
c	Did the foundation engage in a prior year in any of the acts described in 1a, other than excepted acts, that were not corrected before the first day of the tax year beginning in 2013?	1c		
2	Taxes on failure to distribute income (section 4942) (does not apply for years the foundation was a private operating foundation defined in section 4942(j)(3) or 4942(j)(5))			
a	At the end of tax year 2013, did the foundation have any undistributed income (lines 6d and 6e, Part XIII) for tax year(s) beginning before 2013? If "Yes," list the years 20__ , 20__ , 20__ , 20__ <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
b	Are there any years listed in 2a for which the foundation is not applying the provisions of section 4942(a)(2) (relating to incorrect valuation of assets) to the year's undistributed income? (If applying section 4942(a)(2) to all years listed, answer "No" and attach statement—see instructions).	2b		
c	If the provisions of section 4942(a)(2) are being applied to any of the years listed in 2a, list the years here 20__ , 20__ , 20__ , 20__			
3a	Did the foundation hold more than a 2% direct or indirect interest in any business enterprise at any time during the year? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
b	If "Yes," did it have excess business holdings in 2013 as a result of (1) any purchase by the foundation or disqualified persons after May 26, 1969, (2) the lapse of the 5-year period (or longer period approved by the Commissioner under section 4943(c)(7)) to dispose of holdings acquired by gift or bequest, or (3) the lapse of the 10-, 15-, or 20-year first phase holding period? (<i>Use Schedule C, Form 4720, to determine if the foundation had excess business holdings in 2013.</i>)	3b		
4a	Did the foundation invest during the year any amount in a manner that would jeopardize its charitable purposes?	4a		No
b	Did the foundation make any investment in a prior year (but after December 31, 1969) that could jeopardize its charitable purpose that had not been removed from jeopardy before the first day of the tax year beginning in 2013?	4b		No

Part VII-B Statements Regarding Activities for Which Form 4720 May Be Required (continued)

<p>5a During the year did the foundation pay or incur any amount to</p> <p>(1) Carry on propaganda, or otherwise attempt to influence legislation (section 4945(e))? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>(2) Influence the outcome of any specific public election (see section 4955), or to carry on, directly or indirectly, any voter registration drive? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>(3) Provide a grant to an individual for travel, study, or other similar purposes? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>(4) Provide a grant to an organization other than a charitable, etc., organization described in section 509(a)(1), (2), or (3), or section 4940(d)(2)? (see instructions). <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>(5) Provide for any purpose other than religious, charitable, scientific, literary, or educational purposes, or for the prevention of cruelty to children or animals? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>b If any answer is "Yes" to 5a(1)–(5), did any of the transactions fail to qualify under the exceptions described in Regulations section 53.4945 or in a current notice regarding disaster assistance (see instructions)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Organizations relying on a current notice regarding disaster assistance check here. <input type="checkbox"/></p> <p>c If the answer is "Yes" to question 5a(4), does the foundation claim exemption from the tax because it maintained expenditure responsibility for the grant? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes," attach the statement required by Regulations section 53.4945–5(d).</p> <p>6a Did the foundation, during the year, receive any funds, directly or indirectly, to pay premiums on a personal benefit contract? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>b Did the foundation, during the year, pay premiums, directly or indirectly, on a personal benefit contract? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes" to 6b, file Form 8870.</p> <p>7a At any time during the tax year, was the foundation a party to a prohibited tax shelter transaction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>b If yes, did the foundation receive any proceeds or have any net income attributable to the transaction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	5b		
	6b		No
	7b		

Part VIII Information About Officers, Directors, Trustees, Foundation Managers, Highly Paid Employees, and Contractors

1 List all officers, directors, trustees, foundation managers and their compensation (see instructions).

(a) Name and address	(b) Title, and average hours per week devoted to position	(c) Compensation (If not paid, enter -0-)	(d) Contributions to employee benefit plans and deferred compensation	(e) Expense account, other allowances
STEPHEN O DEAN 2 PROFESSIONAL DRIVE GAITHERSBURG, MD 20878	PRESIDENT 20 00	39,000	0	0
RUTH WATKINS 2 PROFESSIONAL DRIVE GAITHERSBURG, MD 20878	VICE PRESIDE 5 00	6,160	0	0
SEE ATTACHMENT 2 PROFESSIONAL DRIVE GAITHERSBURGE, MD 20879	DIRECTORS 1 00	0	0	0

2 Compensation of five highest-paid employees (other than those included on line 1—see instructions). If none, enter "NONE."

(a) Name and address of each employee paid more than \$50,000	(b) Title, and average hours per week devoted to position	(c) Compensation	(d) Contributions to employee benefit plans and deferred compensation	(e) Expense account, other allowances
NONE				

Total number of other employees paid over \$50,000.

Part VIII Information About Officers, Directors, Trustees, Foundation Managers, Highly Paid Employees, and Contractors (continued)

3 Five highest-paid independent contractors for professional services (see instructions). If none, enter "NONE".

(a) Name and address of each person paid more than \$50,000	(b) Type of service	(c) Compensation
NONE		

Total number of others receiving over \$50,000 for professional services. ▶

Part IX-A Summary of Direct Charitable Activities

List the foundation's four largest direct charitable activities during the tax year. Include relevant statistical information such as the number of organizations and other beneficiaries served, conferences convened, research papers produced, etc	Expenses
1 A SCIENCE SERVICE AWARD WAS MADE FOR 2500	2,500
2	
3	
4	

Part IX-B Summary of Program-Related Investments (see instructions)

Describe the two largest program-related investments made by the foundation during the tax year on lines 1 and 2	Amount
1 N/A	
2	
All other program-related investments See page 24 of the instructions	
3	

Total. Add lines 1 through 3 ▶

Part X Minimum Investment Return (All domestic foundations must complete this part. Foreign foundations, see instructions.)

1	Fair market value of assets not used (or held for use) directly in carrying out charitable, etc , purposes		
a	Average monthly fair market value of securities.	1a	78,172
b	Average of monthly cash balances.	1b	57,394
c	Fair market value of all other assets (see instructions).	1c	300,000
d	Total (add lines 1a, b, and c).	1d	435,566
e	Reduction claimed for blockage or other factors reported on lines 1a and 1c (attach detailed explanation).	1e	
2	Acquisition indebtedness applicable to line 1 assets.	2	
3	Subtract line 2 from line 1d.	3	435,566
4	Cash deemed held for charitable activities Enter 1 1/2% of line 3 (for greater amount, see instructions).	4	45,000
5	Net value of noncharitable-use assets. Subtract line 4 from line 3 Enter here and on Part V, line 4	5	390,566
6	Minimum investment return. Enter 5% of line 5.	6	19,528

Part XI Distributable Amount (see instructions) (Section 4942(j)(3) and (j)(5) private operating foundations and certain foreign organizations check here and do not complete this part.)

1	Minimum investment return from Part X, line 6.	1	
2a	Tax on investment income for 2013 from Part VI, line 5.	2a	
b	Income tax for 2013 (This does not include the tax from Part VI).	2b	
c	Add lines 2a and 2b.	2c	
3	Distributable amount before adjustments Subtract line 2c from line 1.	3	
4	Recoveries of amounts treated as qualifying distributions.	4	
5	Add lines 3 and 4.	5	
6	Deduction from distributable amount (see instructions).	6	
7	Distributable amount as adjusted Subtract line 6 from line 5 Enter here and on Part XIII, line 1.	7	

Part XII Qualifying Distributions (see instructions)

1	Amounts paid (including administrative expenses) to accomplish charitable, etc , purposes		
a	Expenses, contributions, gifts, etc —total from Part I, column (d), line 26.	1a	0
b	Program-related investments—total from Part IX-B.	1b	
2	Amounts paid to acquire assets used (or held for use) directly in carrying out charitable, etc , purposes.	2	
3	Amounts set aside for specific charitable projects that satisfy the		
a	Suitability test (prior IRS approval required).	3a	
b	Cash distribution test (attach the required schedule).	3b	
4	Qualifying distributions. Add lines 1a through 3b Enter here and on Part V, line 8, and Part XIII, line 4	4	0
5	Foundations that qualify under section 4940(e) for the reduced rate of tax on net investment income Enter 1% of Part I, line 27b (see instructions).	5	
6	Adjusted qualifying distributions. Subtract line 5 from line 4.	6	

Note: The amount on line 6 will be used in Part V, column (b), in subsequent years when calculating whether the foundation qualifies for the section 4940(e) reduction of tax in those years

Part XIII Undistributed Income (see instructions)

	(a) Corpus	(b) Years prior to 2012	(c) 2012	(d) 2013
1 Distributable amount for 2013 from Part XI, line 7				
2 Undistributed income, if any, as of the end of 2013				
a Enter amount for 2012 only.				
b Total for prior years 20___, 20___, 20___				
3 Excess distributions carryover, if any, to 2013				
a From 2008.				
b From 2009.				
c From 2010.				
d From 2011.				
e From 2012.				
f Total of lines 3a through e.				
4 Qualifying distributions for 2013 from Part XII, line 4 ▶ \$ _____				
a Applied to 2012, but not more than line 2a				
b Applied to undistributed income of prior years (Election required—see instructions).				
c Treated as distributions out of corpus (Election required—see instructions).				
d Applied to 2013 distributable amount.				
e Remaining amount distributed out of corpus				
5 Excess distributions carryover applied to 2013 <i>(If an amount appears in column (d), the same amount must be shown in column (a).)</i>				
6 Enter the net total of each column as indicated below:				
a Corpus Add lines 3f, 4c, and 4e Subtract line 5				
b Prior years' undistributed income Subtract line 4b from line 2b.				
c Enter the amount of prior years' undistributed income for which a notice of deficiency has been issued, or on which the section 4942(a) tax has been previously assessed.				
d Subtract line 6c from line 6b Taxable amount—see instructions				
e Undistributed income for 2012 Subtract line 4a from line 2a Taxable amount—see instructions				
f Undistributed income for 2013 Subtract lines 4d and 5 from line 1 This amount must be distributed in 2014				
7 Amounts treated as distributions out of corpus to satisfy requirements imposed by section 170(b)(1)(F) or 4942(g)(3) (see instructions).				
8 Excess distributions carryover from 2008 not applied on line 5 or line 7 (see instructions).				
9 Excess distributions carryover to 2014. Subtract lines 7 and 8 from line 6a.				
10 Analysis of line 9				
a Excess from 2009.				
b Excess from 2010.				
c Excess from 2011.				
d Excess from 2012.				
e Excess from 2013.				

Part XIV Private Operating Foundations (see instructions and Part VII-A, question 9)

1a If the foundation has received a ruling or determination letter that it is a private operating foundation, and the ruling is effective for 2013, enter the date of the ruling.

b Check box to indicate whether the organization is a private operating foundation described in section 4942(j)(3) or 4942(j)(5)

2a Enter the lesser of the adjusted net income from Part I or the minimum investment return from Part X for each year listed

Tax year	Prior 3 years			(e) Total	
(a) 2013	(b) 2012	(c) 2011	(d) 2010		
0				0	
b 85% of line 2a					
c Qualifying distributions from Part XII, line 4 for each year listed		106,881	129,372	110,229	346,482
d Amounts included in line 2c not used directly for active conduct of exempt activities					
e Qualifying distributions made directly for active conduct of exempt activities Subtract line 2d from line 2c		106,881	129,372	110,229	346,482

3 Complete 3a, b, or c for the alternative test relied upon

a "Assets" alternative test—enter

(1) Value of all assets

(2) Value of assets qualifying under section 4942(j)(3)(B)(i)

b "Endowment" alternative test— enter 2/3 of minimum investment return shown in Part X, line 6 for each year listed.

13,019

c "Support" alternative test—enter

(1) Total support other than gross investment income (interest, dividends, rents, payments on securities loans (section 512(a)(5)), or royalties)

(2) Support from general public and 5 or more exempt organizations as provided in section 4942(j)(3)(B)(iii).

(3) Largest amount of support from an exempt organization

(4) Gross investment income

Part XV Supplementary Information (Complete this part only if the organization had \$5,000 or more in assets at any time during the year—see instructions.)

- 1 Information Regarding Foundation Managers:**
- a** List any managers of the foundation who have contributed more than 2% of the total contributions received by the foundation before the close of any tax year (but only if they have contributed more than \$5,000) (See section 507(d)(2))
-
- b** List any managers of the foundation who own 10% or more of the stock of a corporation (or an equally large portion of the ownership of a partnership or other entity) of which the foundation has a 10% or greater interest
-
- 2 Information Regarding Contribution, Grant, Gift, Loan, Scholarship, etc., Programs:**
- Check here if the foundation only makes contributions to preselected charitable organizations and does not accept unsolicited requests for funds If the foundation makes gifts, grants, etc (see instructions) to individuals or organizations under other conditions, complete items 2a, b, c, and d
-
- a** The name, address, and telephone number of the person to whom applications should be addressed
-
- b** The form in which applications should be submitted and information and materials they should include
-
- c** Any submission deadlines
-
- d** Any restrictions or limitations on awards, such as by geographical areas, charitable fields, kinds of institutions, or other factors

Part XV Supplementary Information (continued)

3 Grants and Contributions Paid During the Year or Approved for Future Payment

Recipient	If recipient is an individual, show any relationship to any foundation manager or substantial contributor	Foundation status of recipient	Purpose of grant or contribution	Amount
Name and address (home or business)				
a <i>Paid during the year</i>				
Total				▶ 3a
b <i>Approved for future payment</i>				
Total				▶ 3b

Schedule B
(Form 990, 990-EZ,
or 990-PF)

Schedule of Contributors

OMB No 1545-0047

Department of the Treasury
Internal Revenue Service

▶ **Attach to Form 990, 990-EZ, or 990-PF.**
▶ **Information about Schedule B (Form 990, 990-EZ, or 990-PF) and its instructions is at**
www.irs.gov/form990.

2013

Name of the organization
FUSION POWER ASSOCIATES

Employer identification number
52-1162794

Organization type (check one)

Filers of:

Section:

Form 990 or 990-EZ

501(c)() (enter number) organization

4947(a)(1) nonexempt charitable trust **not** treated as a private foundation

527 political organization

Form 990-PF

501(c)(3) exempt private foundation

4947(a)(1) nonexempt charitable trust treated as a private foundation

501(c)(3) taxable private foundation

Check if your organization is covered by the **General Rule** or a **Special Rule**.

Note. Only a section 501(c)(7), (8), or (10) organization can check boxes for both the General Rule and a Special Rule. See instructions.

General Rule

For an organization filing Form 990, 990-EZ, or 990-PF that received, during the year, \$5,000 or more (in money or property) from any one contributor. Complete Parts I and II.

Special Rules

For a section 501(c)(3) organization filing Form 990 or 990-EZ that met the 33¹/₃% support test of the regulations under sections 509(a)(1) and 170(b)(1)(A)(vi) and received from any one contributor, during the year, a contribution of the greater of **(1)** \$5,000 or **(2)** 2% of the amount on (i) Form 990, Part VIII, line 1h, or (ii) Form 990-EZ, line 1. Complete Parts I and II.

For a section 501(c)(7), (8), or (10) organization filing Form 990 or 990-EZ that received from any one contributor, during the year, total contributions of more than \$1,000 for use *exclusively* for religious, charitable, scientific, literary, or educational purposes, or for the prevention of cruelty to children or animals. Complete Parts I, II, and III.

For a section 501(c)(7), (8), or (10) organization filing Form 990 or 990-EZ that received from any one contributor, during the year, contributions for use *exclusively* for religious, charitable, etc., purposes, but these contributions did not total more than \$1,000. If this box is checked, enter here the total contributions that were received during the year for an *exclusively* religious, charitable, etc., purpose. Do not complete any of the parts unless the **General Rule** applies to this organization because it received *nonexclusively* religious, charitable, etc., contributions of \$5,000 or more during the year. ▶ \$ _____

Caution. An organization that is not covered by the General Rule and/or the Special Rules does not file Schedule B (Form 990, 990-EZ, or 990-PF), but it **must** answer "No" on Part IV, line 2, of its Form 990, or check the box on line H of its Form 990-EZ or on its Form 990PF, Part I, line 2, to certify that it does not meet the filing requirements of Schedule B (Form 990, 990-EZ, or 990-PF).

Name of organization
FUSION POWER ASSOCIATES

Employer identification number
52-1162794

Part I Contributors (see instructions) Use duplicate copies of Part I if additional space is needed

(a) No.	(b) Name, address, and ZIP + 4	(c) Total contributions	(d) Type of contribution
1	AMERICAN PHYSICAL SOCIETY ONE PHYSICS ELLIPSE COLLEGE PARK, MD 20740	\$ 5,000	Person <input checked="" type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)
		\$	Person <input type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)
		\$	Person <input type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)
		\$	Person <input type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)
		\$	Person <input type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)
		\$	Person <input type="checkbox"/> Payroll <input type="checkbox"/> Noncash <input type="checkbox"/> (Complete Part II for noncash contributions)

Name of organization
FUSION POWER ASSOCIATES

Employer identification number
52-1162794

Part II Noncash Property (see instructions) Use duplicate copies of Part II if additional space is needed

(a) No. from Part I	(b) Description of noncash property given	(c) FMV (or estimate) (see instructions)	(d) Date received
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____
_____	_____ _____ _____ _____	\$ _____	_____

Name of organization
FUSION POWER ASSOCIATES

Employer identification number
52-1162794

Part III Exclusively religious, charitable, etc., individual contributions to section 501(c)(7), (8), or (10) organizations that total more than \$1,000 for the year. Complete columns (a) through (e) and the following line entry
For organizations completing Part III, enter the total of exclusively religious, charitable, etc., contributions of \$1,000 or less for the year (Enter this information once. See instructions.) \$
Use duplicate copies of Part III if additional space is needed

(a) No. from Part I	(b) Purpose of gift	(c) Use of gift	(d) Description of how gift is held
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(e) Transfer of gift	
Transferee's name, address, and ZIP 4	Relationship of transferor to transferee
_____	_____
_____	_____
_____	_____

(a) No. from Part I	(b) Purpose of gift	(c) Use of gift	(d) Description of how gift is held
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(e) Transfer of gift	
Transferee's name, address, and ZIP 4	Relationship of transferor to transferee
_____	_____
_____	_____
_____	_____

(a) No. from Part I	(b) Purpose of gift	(c) Use of gift	(d) Description of how gift is held
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(e) Transfer of gift	
Transferee's name, address, and ZIP 4	Relationship of transferor to transferee
_____	_____
_____	_____
_____	_____

(a) No. from Part I	(b) Purpose of gift	(c) Use of gift	(d) Description of how gift is held
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(e) Transfer of gift	
Transferee's name, address, and ZIP 4	Relationship of transferor to transferee
_____	_____
_____	_____
_____	_____

TY 2013 Accounting Fees Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Category	Amount	Net Investment Income	Adjusted Net Income	Disbursements for Charitable Purposes
INDIRECT ACCOUNTING FEES	950			

TY 2013 Compensation Explanation

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Person Name	Explanation
STEPHEN O DEAN	
RUTH WATKINS	
SEE ATTACHMENT	

Note: To capture the full content of this document, please select landscape mode (11" x 8.5") when printing.

TY 2013 Depreciation Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Description of Property	Date Acquired	Cost or Other Basis	Prior Years' Depreciation	Computation Method	Rate / Life (# of years)	Current Year's Depreciation Expense	Net Investment Income	Adjusted Net Income	Cost of Goods Sold Not Included
DEPRECIATION						2,580			

Note: To capture the full content of this document, please select landscape mode (11" x 8.5") when printing.

TY 2013 Gain/Loss from Sale of Other Assets Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Name	Date Acquired	How Acquired	Date Sold	Purchaser Name	Gross Sales Price	Basis	Basis Method	Sales Expenses	Total (net)	Accumulated Depreciation
		PURCHASE			2,175				2,175	

TY 2013 Land, Etc. Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Category / Item	Cost / Other Basis	Accumulated Depreciation	Book Value	End of Year Fair Market Value
CONDO	77,400	73,530	3,870	200,000
FURNITURE	35,169	35,169		1,000
LAND	56,805		56,805	70,000

TY 2013 Legal Fees Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Category	Amount	Net Investment Income	Adjusted Net Income	Disbursements for Charitable Purposes
INDIRECT LEGAL FEES	145			

TY 2013 Other Expenses Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Description	Revenue and Expenses per Books	Net Investment Income	Adjusted Net Income	Disbursements for Charitable Purposes
EXPENSES				
SUPPLIES AND SERVICES	4,739			
TELEPHONE	3,239			
POSTAGE AND SHIPPING	1,393			
BOOKS, SUBSCRIPTIONS, REFEREN	2,223			
BANK SERVICE CHARGE	1,591			
AWARDS	500			
GRANTS AND CONTRACTS	8,396			

TY 2013 Other Income Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Description	Revenue And Expenses Per Books	Net Investment Income	Adjusted Net Income
DUES	50,750		50,750
MEETINGS AND SEMINARS	31,059		31,059
DONATIONS	4,910		4,910

TY 2013 Taxes Schedule

Name: FUSION POWER ASSOCIATES

EIN: 52-1162794

Category	Amount	Net Investment Income	Adjusted Net Income	Disbursements for Charitable Purposes
PAYROLL TAXES	471			
TAXES-OTHER	115			
TAXES-REAL ESTATE	4,764			

Part IX-A

1. Summary of Charitable Activities

Since its inception in August 1979, FPA has continuously conducted programs designed to provide the scientific community and the public with information about fusion power generation as a potential source to supply a portion of the world's future energy needs.

(1) Publishing a bimonthly newsletter for members and other interested parties. The newsletter reports on technical developments relating to fusion power generation, discusses administrative and governmental activities and decisions relating to fusion power development and announces meetings, forums, and symposia at which fusion power will be discussed. Copies of the newsletters published for January/February, July/August, and November/December 2013 are attached as Attachments A-1, A-2, and A-3.

(2) Sponsoring conferences, forums and other studies to assess the technological advances of fusion power generation. The product of any such conference, forum or study is made available to all persons, including interested government officials and members of the public. FPA sponsored one conference in 2013. The proceedings of conferences are published in the Journal of Fusion Energy (Plenum Press).

(3) Research and analyses in fusion. The focus of such research and analyses is the program management and development of fusion science and technology. FPA received a grant in 2013 from the American Physical Society.

FPA will continue to conduct conferences, publish newsletters and periodicals, reports, and to respond to invitations to make presentations to government panels, public forums, or other groups interested in fusion power production or energy production generally. In addition, FPA anticipates that, as funding permits, the above activities may be expanded.

52-1162794
Fusion Power Associates
Attachment to 990PF

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Attachments to 990 PF**

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Fusion Power Report

Complete Coverage Of Worldwide Fusion Developments

Vol. 34 No. 1/2

January/February 2013

Page 1

SLANTS & TRENDS

Princeton Director Stewart Prager comments on way forward with magnetic fusion energy

See Story on page 1

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The US Electric Power Research Institute issues report titled "Assessment of Fusion Energy Options for Commercial Electricity Production"

See Story on page 3

* * *

French Regulators authorize ITER as a "Basic Nuclear Installation" following 2.5 year review.

See Story on page 3

* * *

The ITER Organization signs Procurement Agreement with European Union for ITER Divertor Remote Handling System.

See Story on page 4

* * *

ITER Management Advisory Committee and Science and Technology Advisory Committee comment on ITER progress

See Story on page 4

* * *

ITER Plasma-Facing Component tests begin at the Efremov Institute in St. Petersburg, Russia.

See Story on page 5

ITER Council meets to review ITER progress.

See story on page 5

* * *

83 M Euro contract signed for ITER Liquid Helium Plant

See Story on page 7

Veteran Ukrainian Fusion Scientist V. T. Tolok passes away December 11, 2012.

See Story on page 7

Inside This Issue

*Princeton Director Prager
Comments on Way Forward Page 1*

*EPRI Issues
Fusion Assessment Page 3*

*French Regulators
Give ITER Go-Ahead Page 3*

*The ITER Divertor
Remote Handling System Page 4*

*ITER MAC and STAC
Review Progress Page 4*

*ITER Plasma Facing Components
Tests Underway Page 5*

*Ukrainian Scientist V. T. Tolok
Passes Away Page 7*

Calendar Page 8

Way Forward with Magnetic Fusion Energy

Stewart C. Prager, Director of the Princeton Plasma Physics Laboratory, recently issued a statement that reads in part:

“As budget negotiations heat up, so does the debate over the balance between investments in the long-term future and short-term necessities. Fusion is a long-term opportunity that will transform how we energize our society. The fact that ignition in a large American experimental inertial confinement fusion facility did not occur as hoped by Sept. 30 has sadly raised questions about the scientific legitimacy of that pursuit. That the scientists did not meet their goal by that day probably has little bearing on that field’s ultimate success. Importantly, this non-event should not bear any relation to the fate of other vital work centering on an entirely different approach known as magnetic fusion.”

“We need to keep our eyes on fusion as a transformative source of energy for the world. There are many powerful reasons why we need to forge ahead.”

“Further, the fact that conquering this complex problem in laser fusion has not been “on schedule” has nothing to say about progress in magnetic fusion – it has been and continues to be remarkable.

Those with a long memory will recall the very early optimism about fusion energy that existed in the late 1950s and 1960s. On the heels of the quick success in moving fission energy forward, it was thought practical fusion would follow closely behind. Instead, the world’s scientists ran into an unexpected barrier — the immense physics complexity and seeming impossibility of taming fusion plasmas.”

“The ensuing decades have seen an intense scientific focus on what is truly a grand scientific challenge. Scientists now are teasing out the secrets of complex multi-scaled layers of turbulence in plasmas, the movement of particles through those plasmas, their interaction with magnetic fields, and numerous other phenomena that impact the plasma’s ability to be harnessed as an energy source. This focus in magnetic fusion has driven the development of a new scientific field, plasma physics, with huge benefits for science in general – from understanding cosmic plasmas to employing these hot, ionized gases for computer chip manufacturing.”

“On the energy front, we have advanced from fusion energy production of milliwatts in the 1970s to 16 megawatts (for a duration of 1 second) in the 1990s. With our existing under-powered machines, magnetic fusion scientists are producing and producing close to fusion energy-grade plasmas around the world on a daily basis. We are confident that abundant fusion energy can be produced on a very large scale and are now focused on the remaining physics and engineering challenges to make it practical and attractive.”

“The next major experimental step in magnetic fusion is ITER – the international experiment that will generate 500 megawatts of fusion power, at a physical scale of a power plant. Under construction in France, ITER will begin operation within ten years. It involves participation of the entire developed world, with the ITER partners representing the governments of half the world’s population. The scientific basis for ITER was separately scrutinized and approved by scientific panels in each of these nations. ITER is large, complex, and full of challenges. But, the likelihood of scientific success is high.”

“Most nations involved in ITER have robust fusion research programs that are essential to tackle other key scientific and technical issues. With these accompanying programs, we would be ready to operate a demonstration fusion power plant following ITER about 25 years from today.”

“Fusion is a nearly ideal energy source – essentially inexhaustible, clean, safe, and likely available to all nations. When proven practical, it will transform our energy future. At this moment, research investment by the rest of the world – China, Korea, the EU – is surging in magnetic fusion, while the U.S. investment is stagnating. The U.S. is at a turning point. We either maintain our long-developed leadership position in this energy and science frontier, or slip behind as other nations take the fruit of decades of scientific research – much of it from the U.S. – and convert it into a practical energy source for powering the world.”

A link to the complete statement is at <http://fire.pppl.gov>

EPRI Issues Fusion Study Report

The Electric Power Research Institute (EPRI) has completed a study entitled "Assessment of Fusion Energy Options for Commercial Elec-

tricity Production." The 66-page report was summarized at Fusion Power Associates Annual Meeting and Symposium, December 5-6 in Washington, DC (<http://fusionpower.org>). The report is available on request from Fusion Power Associates (fusionpwrassoc@aol.com) or can be downloaded at <http://fire.pppl.gov>

The report states: "Fusion energy options were reviewed to assess technical readiness levels for commercial electricity production for the power industry. Magnetic and inertial confinement systems, in addition to nontraditional fusion concepts, were reviewed by a technical panel of experts, based on workshop presentations by the proponents of each technology. The results are summarized in this report. The conclusion of the review is that, although significant progress is being made in many areas, commercial application is not likely for at least 30 years—if the concepts prove feasible. Recommendations are provided to focus more of this research on engineering and power applications and to engage the power industry in monitoring progress."

The report states:

"From the utility perspective, the production of electricity should be the main objective of a fusion development program. At present, electricity generation appears to be an add-on and not a primary objective to the basic science of the fusion development program, largely due to the challenges of developing a fusion device that produces more energy than it consumes. The following actions are recommended:

- Direct more fusion research on the engineering and operational challenges of a power plant, including how to maximize the value of the fusion power produced. More consideration should be given to the conversion of the heat of fusion to power production and the reliability of any fusion device. Consider developing more advanced and perhaps direct power conversion systems to enhance the overall efficiency of energy-to-electricity conversion.
- Identify common materials and technology needs (such as tritium production) that a fusion test facility could address to meet most of the needs for both magnetic and inertial confinement systems.
- Monitor and periodically re-evaluate the fusion programs to assess the potential for electric power production in the nearer term to identify which concepts are likely to produce

tangible fusion power. At the appropriate time, do the following:

- Create a utility advisory group to focus fusion energy research and development projects to address more utility needs, particularly in the area of operations and maintenance, and to provide input into the design of the fusion power plants.
- Begin to consider the regulatory requirements for commercial fusion power plants in terms of establishing safety and licensing standards.

French Regulators Give ITER Go-Ahead

On 10 November 2012, the Journal Officiel de la République Française published the decree that authorizes the ITER Organization to create the Installation nucléaire de base ITER (Basic Nuclear Installation) in Saint-Paul-lez-Durance, France. Signed by Prime Minister Jean-Marc Ayrault, this decree confirms the safety of the ITER nuclear installation and clears the way for the pursuit of ITER construction.

The publication of the *Décret d'autorisation de création* constitutes a major step forward for the ITER project. It comes as a result of two-and-a-half years of hard work, both on the part of the ITER Organization and on the part of French authorities. The *Demande d'autorisation de création* (or DAC files) for ITER—nearly 6,000 pages of in-depth description of the design and operational conditions of ITER—was submitted to the French authorities in March 2010. The files underwent a thorough examination by the French Nuclear Safety Authority (ASN), environmental authorities and groups of independent experts. A Public Enquiry was organized between 15 June and 4 August 2011, allowing the public to formulate its opinion on the project. On 9 September, the Public Enquiry Commission issued a favourable Advisory Opinion for the pursuit of the licensing procedure.

The licensing of a nuclear installation is a long, complex and rigorous process. ITER is the first nuclear installation in France to observe the stringent requirements of the 2006 French law on Nuclear Transparency and Security. It is also the first time in worldwide history that the safety characteristics of a fusion device have undergone the rigorous scrutiny of a Nuclear Regulator to obtain nuclear licensing. ITER has

achieved an important landmark in fusion history.

ITER Director-General Osamu Motojima issued the following statement:

“Step by step, over the past two and a half years, we've been progressing toward an essential milestone in the history of our project. This milestone has now been achieved: two days ago, on Saturday 10 November, French Prime Minister Jean-Marc Ayrault signed the official decree that authorizes the ITER Organization to create the Installation nucléaire de base (INB) ITER.

“This long-awaited document is the culmination of a tremendous amount of work, both on our side and on that of the French authorities. For the past 30 months, our project has been scrutinized by different groups and committees, submitted to the analysis of several boards of experts, and also to the public's judgment. Every nut and bolt of the ITER machine, as well as its operational objectives, have been closely examined.

“These procedures were no mere formalities -- they were long, complex and demanding. They were also indispensable, both from a regulatory point of view and because of the responsibility that is ours: as ITER is the first fusion device that qualifies as a nuclear installation, we had to explore largely uncharted territory.

“This landmark decree comes as just reward for our rigorous consideration of safety and environmental issues. It is a reward for the ITER Safety, Quality & Security Department (and, more specifically, to its Licensing Cell); a reward for the Department for the ITER Project; but it is also a reward for each and every one of us. Whether directly involved or not, we all contributed to this success and I want to thank you all, whatever your position or responsibility within the ITER Organization.

“We have worked constructively with the French authorities and will continue to do so throughout the duration of ITER's lifetime. As demonstrated throughout the past 30 months, ours is an uncompromising but trusting relationship, one that is based on a strong engagement from ITER.

“We never doubted the validity of our project. ITER safety has now been confirmed by a large body of outside, independent experts. This is indeed a great day for ITER. “

Procurement Agreement for ITER Divertor Remote Handling System

On Wednesday 31 October ITER Director-General Osamu Motojima and Jean-Marc Filhol, acting head of the European Domestic Agency's ITER Department, signed the Procurement Agreement for the Divertor Remote Handling System (DRHS).

The DRHS provides the means for remote replacement of the ITER divertor system. The divertor handling concept relies on the use of heavy remote handling transporters known as "Cassette Movers" and dexterous, man-in-the-loop tele-manipulators. The former are required to achieve high-accuracy transport of the 8-12 ton in-vessel components from their entry point to their operational position in the vacuum vessel. The latter are required to precisely deploy a variety of mobile tools for pipe maintenance, (un)locking of the cassettes from the toroidal rails, (dis)connection of diagnostic cabling, etc.

The DRHS makes use of the remote handling transfer casks to allow safe transport of contaminated/radioactive in-vessel components to and from the Hot Cell.

The ITER team and a number of European institutions have been working on the development of the ITER divertor maintenance concept for more than 15 years. The most challenging steps within the process have been demonstrated at full scale, first within the DTP (Divertor Test Platform) constructed in Brasi-mone, Italy (ITER 1998 design), and more recently within the DTP2 located in Tampere, Finland (ITER 2001 design). This long concept preparation period is now over and with the signing of the Procurement Arrangement and the engagement of an industrial supplier in the next few months, the task of establishing a fully comprehensive, industrialized set of equipment for the remote exchange of the ITER divertor begins.

ITER Management Review

On 07 November, ITER Director-General Osamu Motojima called for an all-hands meeting in the Headquarters' brand-new amphitheatre in order to brief the ITER Organization staff on the outcome of the recent meetings of the projects scientific and managerial advisory committees.

At the outset, the Director-General presented the conclusions of the 14th meeting of the project's Management Advisory Committee (MAC) that had taken place on 29-31 October "the MAC recognized that further and intensive efforts are necessary," MAC Chair Ranjay Sharan explained. "The variances will have to be minimized by parallel working approaches and innovative methods. The MAC will closely monitor these approaches."

Of greatest concern: the delays related to six super-critical items—the buildings, the vacuum vessel, the poloidal field coils, the toroidal field coils, the central solenoid conductor and the cryostat.

Two other essential issues were the focus of this 14th MAC meeting: the rules for further distribution of credits amongst the ITER Members as proposed in the "MAC-10 Guidelines," and the proposal for a simplified assembly plan with the intention to recover some of the time slippages. "Based on the different feedback we received to this plan, the MAC suggests that the project remain focused on the normal step-by-step assembly strategy, but that it evaluate options to reduce risks and the time required for the assembly and the transport of components in order to provide more confidence in the dates for First Plasma and Deuterium-Tritium operation," Sharan said.

As for the technical assessment, the Science and Technology Advisory Committee (STAC) commended the ITER Organization and the ITER Domestic Agencies on significant progress made, especially in the manufacturing of ITER magnets. More than 350 tons (73,000 km) of niobium-tin (Nb₃Sn) strand for the toroidal field conductor have been produced so far, corresponding to approximately 75 percent of total amount needed. Also, approximately 65 tons of poloidal field conductor strand (25 percent of supply) have been produced.

The STAC noted that—with the exception of the poloidal field coils—there are currently no new major delays in the critical path due to magnets. The STAC further complimented the ITER Organization's comprehensive report on remote handling and the good progress that has been made in developing a strategy for the installation, maintenance and potential repair of the first wall and the divertor.

ITER Plasma-facing Components Tests Begin in Russia

The first testing of plasma-facing components for ITER's outer divertor target full-scale prototype started at the Efremov Institute in St Petersburg, Russia in late October.

These crucially important and sophisticated heat-capturing elements will be in direct contact with the plasma—a first barrier that will withstand the main heat flux from plasma during operation. As the plasma temperature is to reach 100-150 million °C, and the expected heat load on the divertor surface up to 20 MW/m², the components under test have challenging requirements to meet.

To conduct the tests in Russia, a special ITER Divertor Test Facility was assembled at the Efremov Institute as part of the Russian commitment for the ITER project. Within the Facility, an 800 kW electron injector exposes the components to the same heat loads they will face inside the ITER vacuum vessel in the standard operational mode and allows the testing of their reliability.

The tests being carried out in Russia's northern capital are a vivid example of close international cooperation within the implementation of the ITER project: the components were manufactured in Japan and shipped by our Japanese colleagues directly to St Petersburg for testing at the Russian facility. In compliance with the spirit of tight international collaboration, the works are being carried out in the presence of Russian and Japanese Domestic Agency specialists, as well as experts from the ITER Organization.

ITER Council Meets

The Eleventh ITER Council convened the last week of November at the ITER site for a two-day meeting that brought together the high-level representatives of the seven ITER Members.

The Council issued the following press release:

SAINT PAUL-LEZ-DURANCE, France (29 November 2012)—Convening for its eleventh meeting in the recently completed ITER Headquarters building in Saint Paul-lez-Durance, France, the ITER Council acknowledged substantive advancements in the areas of on-site construction and licensing, and the Members'

intensified component manufacturing activities. The Council also welcomed measures taken for stopping schedule slippage and for enhanced collaboration between the ITER Organization and the seven Domestic Agencies. A major milestone has been achieved as the decree authorizing the creation of the ITER facility has been signed by the French Ministry of Environment.

On 28 and 29 November 2012, the governing body of the ITER Organization convened for the first time in the newly completed Headquarters building. The two-day meeting of the ITER Council brought together senior representatives from all the seven ITER Members—China, the European Union, India, Japan, Korea, Russia and the United States—under the chairmanship of Dr. Hideyuki Takatsu (Japan).

The Council noted the continued strong pace of construction activities at the ITER site including the completion of the ITER Headquarters building. Manufacturing of Tokamak components and supporting systems is underway in all the ITER Members, with the first completed components expected on site in 2014.

Significant progress has been made in the manufacturing of ITER magnets. More than 350 tons of niobium-tin strand (Nb₃Sn) for the toroidal field conductors have been produced by the six Members involved, representing 75% of total project needs and representing the largest-ever order of this type. Also, 65 tons of niobium-titanium (NbTi) poloidal field conductor (25% of project needs) have been produced by China, Europe and the Russian Federation. The ITER Council encouraged the European and Russian Domestic Agencies to work together to develop synergies in order to prevent schedule slippage for the manufacturing of the poloidal field magnets.

During the meeting, the ITER Organization reported that 80 Procurement Arrangements have been signed to-date; a figure which represents 81.2% of the total in-kind procurement value of ITER construction.

Since the last ITER Council in June 2012, the ITER Organization and the Domestic Agencies

have concentrated on the realization of strategic schedule milestones. New corrective measures have been developed for critical systems such as buildings, the vacuum vessel, the cryostat, and the superconducting magnets.

The Council urged further corrective actions to improve schedule execution and to seek further savings in order to respect the construction budget of the ITER Organization and Domestic Agencies.

The Council welcomed the integrated project management approach proposed by the ITER Organization to enhance collaboration between the ITER Organization and the Domestic Agencies. *“The ITER Organization and the seven Domestic Agencies have established a Unique ITER Team in order to cooperate even more closely for the implementation of ITER. This will in particular allow for jointly addressing the causes of barriers to effective co-operation. Further integration within the Unique ITER Team is key for achieving our goals and minimizing the total cost of the project,”* stressed ITER Organization Director-General Osamu Motojima.

Lastly, the ITER Council celebrated a major licensing milestone: the signature on 9 November 2012 by the French Ministry of Environment (on behalf of Honourable Prime Minister Ayrault) of the decree authorizing the ITER Organization to create the ITER Basic Nuclear Installation in Saint-Paul-lez-Durance, France. The Council requested the ITER Organization to continue the negotiations with the NEA (OECD Nuclear Energy Agency) in order to have the ITER facility included in the scope of the Paris Convention, noting that this decision lies with the contracting parties of the Paris Convention.

Council Members reappointed the Chair and Vice-Chair of the ITER Council and its subsidiary bodies, and thanked Professor Konishi for his contribution as Chair of the Test Blanket Module Program Committee for the past four years.

83 M Euro Contract Signed for ITER Liquid Helium Plant

The ITER Tokamak will rely on the largest cryogenic plant (cryoplant) infrastructure ever built. Three liquid helium plants, working in parallel, will provide a total average cooling capacity of 75 kW at 4.5 K and a maximum cumulated liquefaction rate of 12,300 litres/hour.

On Tuesday, 11 December, ITER Director-General Osamu Motojima and the Managing Director of Air Liquide Advanced Technologies, Xavier Vigor, signed the contract for ITER's three identical liquid helium (LHe) plants. The contract comprises the design, manufacturing, installation and commissioning of the LHe plants, which are adapted to the long-term, uninterrupted operation of the ITER Tokamak. The contract is worth EUR 83 million.

"This is a major milestone not only for the cryogenic system but for the whole project," said the Head of the ITER Plant Engineering Division, Luigi Serio. "The contract covers the principal component that will drive the cool-down of the machine, setting the pace toward First Plasma."

FPA Annual Meeting Presentations Posted

The papers presented at Fusion Power Associates annual meeting and symposium, Fusion Energy: Progress and Promise, held December 5-6 in Washington, DC have been posted.

They can be accessed at <http://fusionpower.org> and click on Annual Meetings and Symposia

They can also be accessed directly at http://fire.pppl.gov/fpa_annual_meet.html

Fusion Plasma Physics - Second Edition

A "Second, Revised and Enlarged Edition" of the text and reference book Fusion Plasma Physics by author Weston M. Stacey has been published by Wiley-VCH.

The Table of Contents includes:

Basic Physics
Motion of Charged Particle

Magnetic Confinement
Kinetic Theory
Fluid Theory
Plasma Equilibria
Waves
Instabilities
Neoclassical Transport
Plasma Rotation
Turbulent Transport
Heating and Current Drive
Plasma-Material Interactions
Divertors
Plasma Edge
Neutral Particle Transport
Power Balance
Operational Limits
Fusion Reactors and Neutron Sources

The book (ISBN: 978-3-527-41134-4) lists for 99 Euros. Ordering information can be obtained from weston.stacey@nre.gatech.edu or at <http://www.wiley-vch.de/>

Ukrainian Fusion Scientist V. T. Tolok passes

Veteran Ukrainian fusion research scientist V. T. (Vladimir Tarasovich) Tolok passed away December 11, 2012. He was a Corresponding Member of the Ukrainian Academy of Sciences, Doctor of Science, Professor, Honored Worker of Ukrainian Science, Distinguished career award member, and well-known scientist in the field of plasma physics and controlled fusion.

V. T. Tolok was born on 25th December 1926 in the small Ukrainian town Uman'. He was a member of the Soviet air force, 1943-1945, serving in the Black Sea region. He graduated from the Kharkov State University (physical-mathematical faculty, nuclear physics branch) in December 1951.

Beginning from 1952, and for many years, V. T. Tolok was an active research scientist and then the leader at Kharkov Institute of Physics and Technology (KIPT) (now the National Science Center KIPT), where he worked on the construction and operation of linear accelerators of protons and electrons, becoming, in 1955, head of the group for development of the electron accelerator LUE-5. This work led to the creation of a unique electron accelerator with characteristics that much exceeded the maximum achieved at that time: energy 5 MeV, electron current 10 A.

His work in plasma physics and fusion began in 1958 when he moved to the plasma physics department recently organized by Academician K. D. Sinel'nikov and became the head of the laboratory on investigation of RF properties of plasma. From 1966 up to 1987 he was the director of the plasma physics division, being head of all works relating to the plasma physics program, and became the Deputy Director of KIPT.

Starting in 1960, on the direct instruction of I. V. Kurchatov, V. T. Tolok was given the leadership responsibility for the development of the stellarator line at KIPT, carrying out the corresponding theoretical and experimental program. Under his direction a series of stellarator type fusion devices, well known to the international fusion community, were developed and assembled in KIPT. Among the devices of this sort that were built and successfully operated, the following should be mentioned: the first in the world stellarator-torsatron Saturn, and the whole family of other torsatrons: Vint-20, Uragan-1, Uragan-2, Uragan-3, and its modification Uragan-3M. The investigations of divertor plasma fluxes in these devices are among those, which still influence the designs of torsatrons today.

V. T. Tolok was an initiator of studies on stellarator type devices of radiofrequency methods of plasma creation and heating. Since the early 1970s these methods have been successfully used on stellarators of the Institute for creation and maintenance of plasma with rather high parameters. He paid much attention to the application of new methods of plasma diagnostics and technology when developing new experimental devices, in particular to the application of cryogenic techniques in magnetic systems for stationary confinement of plasma, as was partly realized in the Crystal-I torsatron.

Simultaneously with the realization of the Uragan program, two other important programs, Beam and Jupiter, were conducted under leadership of V. T. Tolok. A series of electromagnetic traps of the Jupiter type were built up, and the investigations demonstrated that the plasma particle losses correlate well with the classical losses law. Due to support of V. T. Tolok, a significant program on development of quasi-stationary plasma accelerators (QSPA) was started in KIPT, and the most powerful in the world plasma accelerator was put into operation in 1990, which is actively used in radiation technologies.

The program Bulat has to be especially noted, in which V. T. Tolok has made a determinative contribution in development of investigations in the field of high energy plasmochemistry, i.e., building up the technology for producing new materials in

the form of coatings on industrial articles for multifunctional purposes. The experimental and scientific basis for development and perfection of deposition of antiwear coatings was founded, and a series of Bulats were developed: many hundreds of them were introduced in the industry of the USSR. The license for the Bulat technology was bought by the USA Company Multi-ARC.

In 1988 V. T. Tolok organized and became the head of a new vacuum-plasma-technology laboratory in the physical-technical faculty of the Kharkov Karazin University. The main objective of the laboratory was to bring about an improvement of vacuum-plasma technologies on the Bulat installations.

Up to his death, V. T. Tolok was an Adviser to the Director General of NSC KIPT and an honorary Professor of NSC KIPT. He took an active part in the realization of a wide international cooperation with the fusion laboratories over the world: for 14 years he actively participated in work of USSR-USA fusion coordinating committee. He supervised a great number of Candidates and Doctors of Sciences, and is the author and co-author of more than 200 scientific publications. He was awarded with several decorations: the Patriotic war (II degree), For Courage (III degree), the October revolution, the Rank of honor, and many military and labour medals.

Many of his colleagues contributed to this obituary, including:

I. M. Neklyudov, I. N. Vishnevsky, A. S. Bakai, A. N. Dovbnya, V. F. Klepikov, N. F. Shul'ga, I. E. Garkusha, I. A. Girka, V. S. Voitsenya, A. V. Volobuev, A. M. Egorov, O. S. Pavlichenko, V. V. Chechkin, O. M. Shvets

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Calendar

Feb 4-7 15th Israel Conference on Plasma Science and Applications. Holon, Israel.

<http://plasma-gate.weizmann.ac.il/calendar/71/70-IPSTA/>

May 26-30 16th International Conference on Emerging Nuclear Energy Systems (ICENES). Madrid, Spain. <http://www.ICENES2013.org>

June 10-14 Symposium on Fusion Engineering (SOFE). San Francisco. <http://sofe2013.org>