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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 11-K

JUN 28 2011

211

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2010

OR

- TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number 001-13828

- A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

MEMC RETIREMENT SAVINGS PLAN

- B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

MEMC ELECTRONIC MATERIALS, INC.

501 Pearl Drive (City of O'Fallon)
St. Peters, Missouri 63376

MEMC RETIREMENT SAVINGS PLAN

Financial Statements and Supplemental Schedule

December 31, 2010 and 2009

(With Report of Independent Registered Public Accounting Firm Thereon)

MEMC RETIREMENT SAVINGS PLAN

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Report of Independent Registered Public Accounting Firm

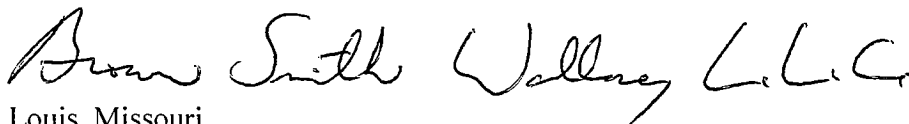
Participants of the MEMC Retirement Savings Plan and
The Board of Directors of MEMC Electronic Materials, Inc.

We have audited the accompanying statements of net assets available for benefits of the MEMC Retirement Savings Plan as of December 31, 2010 and 2009, and the related statements of changes in net assets available for benefits for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the MEMC Retirement Savings Plan as of December 31, 2010 and 2009, and the changes in its net assets available for benefits for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) is presented for the purpose of additional analysis and is not a required part of the basic financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.



St. Louis, Missouri
June 28, 2011

MEMC RETIREMENT SAVINGS PLAN

Statements of Net Assets Available for Benefits

December 31, 2010 and 2009

	<u>2010</u>	<u>2009</u>
Assets:		
Non-interest bearing cash	\$ 10,195	\$ 3,071
Investments at fair value:		
Shares of registered investment companies	73,795,590	57,943,163
MEMC Electronic Materials, Inc. common stock	11,303,038	10,586,626
Collective trusts	66,770,398	64,136,073
Brokerage accounts	3,169,336	2,376,864
Total Investments	<u>155,038,362</u>	<u>135,042,726</u>
Receivables:		
Participant contributions	228,754	175,625
Employer contributions	157,917	126,175
Notes receivable from participants	5,157,727	5,107,113
Total Receivables	<u>5,544,398</u>	<u>5,408,913</u>
Net assets available for benefits before adjustment to contract value and due from plan merger	160,592,955	140,454,710
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	<u>(2,332,893)</u>	<u>(1,776,946)</u>
Net assets available for benefits before plan transfer receivable	158,260,062	138,677,764
Plan transfer receivable from NVT, LLC 401(k) Profit Sharing & Trust (note 11)	6,106,719	-
Net assets available for benefits	<u>\$ 164,366,781</u>	<u>\$ 138,677,764</u>

See accompanying notes to financial statements.

MEMC RETIREMENT SAVINGS PLAN

Statements of Changes in Net Assets Available for Benefits

Years ended December 31, 2010 and 2009

	<u>2010</u>	<u>2009</u>
Additions:		
Income from investments:		
Dividend income	\$ 3,317,394	\$ 2,384,833
Realized and unrealized gains	9,629,953	14,335,774
Total income from investments	<u>12,947,347</u>	<u>16,720,607</u>
Contributions:		
Employer	5,414,113	4,911,257
Participants	8,186,765	7,300,971
Participant rollovers	314,571	181,358
Total contributions	<u>13,915,449</u>	<u>12,393,586</u>
Interest income from notes receivable from participants	281,931	359,502
Total additions	<u>27,144,727</u>	<u>29,473,695</u>
Deductions:		
Benefit payments to participants	8,162,891	13,739,143
Administrative expense	30,642	16,125
Total deductions	<u>8,193,533</u>	<u>13,755,268</u>
Net increase before transfers from other plans	18,951,194	15,718,427
Transfers from other plans (note 11)	6,737,823	-
Net increase in assets available for benefits	25,689,017	15,718,427
Assets available for benefits:		
Beginning of year	138,677,764	122,959,337
End of year	<u>\$ 164,366,781</u>	<u>\$ 138,677,764</u>

See accompanying notes to financial statements.

MEMC RETIREMENT SAVINGS PLAN

Notes to Financial Statements

December 31, 2010 and 2009

(1) Description of the Plan

The following description of the MEMC Retirement Savings Plan (the "Plan") provides only general information. Participants should refer to the Plan document for a more complete description of the Plan's provisions.

(a) General

The Plan was established on April 1, 1989 under the provisions of Section 401(k) of the Internal Revenue Code and is a defined contribution retirement savings plan, subject to the provisions of the Employee Retirement Income Security Act of 1974 ("ERISA"), sponsored by MEMC Electronic Materials, Inc. (the "Company"). The MEMC Electronic Materials, Inc. Investment Committee is the designated administrator of the Plan (the "Plan Administrator"), including having the responsibility for reviewing the performance of the Plan's investment alternatives. Prior to November 30, 2010, generally, all employees of the Company compensated in U.S. dollars from a payroll location within the United States, with the exception of the SunEdison and Solaicx businesses, were eligible to participate in the Plan. Effective as of November 30, 2010, Solaicx employees are eligible to participate in the Plan, and effective as of December 31, 2010, SunEdison employees are eligible to participate in the Plan.

(b) Contributions

Participants may elect to contribute from 1% to 50% of their covered compensation as described in the Plan on a before-tax basis. The before-tax contribution is limited to the amount specified by Section 402(g) of the Internal Revenue Code (\$16,500 in 2010 and \$16,500 in 2009). A participant is eligible to receive employer-matching contributions of 100% of the first 3% of the employee's contribution, 50% of the next 2% contributed, and 20% of the next 1% contributed, up to 4.2% of the participant's covered compensation for the Plan year. The Company contributes 2% of compensation as a special employer contribution on behalf of those individuals whose benefits are frozen in the MEMC Pension Plan or hired on or after January 2, 2002.

(c) Participant's Accounts

Each participant account is comprised of the following subaccounts: a before-tax account, an after-tax account, a Safe Harbor matching account, a matching account, and a rollover account, as applicable. Participants may elect to participate and/or adjust contribution elections at any time. Each participant account is credited with participant contributions as specified by the participant; an allocation of the Company's contributions; and the income, loss, appreciation, and depreciation attributable thereto.

(d) Vesting

Participant matching accounts are immediately and fully vested.

(e) Investment Options

Participants may direct investment or reinvestment of contributions credited to their individual accounts in any one or a combination of the 23 available investment options in increments of 1% of the amount credited. Interfund transfers in and out of the MEMC Stock Fund are limited to one per week. Participants may elect to adjust all other investment options daily.

(f) Notes Receivable From Participants

Participants may apply for and receive loans from their vested account. No more than two loans may be outstanding to a participant at any one time. The amount of loans to an individual participant shall not exceed the lesser of \$50,000 or one-half of the vested portion of the account balance of the participant as of the date the loan is requested by the participant without regard to any contributions allocated to the account of the participant on or after such date. The minimum amount of any loan shall be \$1,000.

(g) Payment of Benefits

Under the terms of the Plan, participants or their designated beneficiaries are entitled to receive the amounts credited to their accounts upon normal retirement at age 65, early retirement, disability, or death. Participants terminating prior to retirement are entitled to receive the portion of their account that is vested. Distributions are made in the form of a lump-sum payment. If the participant's vested balance exceeds \$5,000, the participant may elect to defer receipt of the distribution.

Participants may elect to withdraw all or any portion of the amount credited to their After-Tax Accounts that exceeds the aggregate amount of matched After-Tax contributions to such account in the 24-month period ending on the Valuation Date as of which such withdrawal is made.

Participants may elect to withdraw the amount credited to their Matching Accounts that exceeds the aggregate contributions credited to such accounts in the 24-month period ending on the Valuation Date immediately preceding the date as of which such withdrawal is made.

Participants who have attained age 59½ may elect to withdraw the amounts credited to their Before-Tax and Safe Harbor Matching Accounts and Nonmatching Accounts that exceeded the aggregate contributions credited to such accounts in the 24-month period ending on the valuation date immediately preceding the date as of which such withdrawal is made. Participants who have not yet attained 59½ shall not be eligible to withdraw amounts credited to their Before-Tax and Safe Harbor Matching Accounts, and their Nonmatching Accounts except as provided for hardship withdrawals of Before-Tax contributions.

Participants may elect to withdraw all or any portion of the amount credited to their Rollover Account.

In addition, hardship withdrawals are allowed for employees under age 59½ under certain circumstances in an amount equal to the value of accumulated before-tax contributions and the Safe Harbor Match Account. Account earnings are not eligible for inclusion in the withdrawal amount. Participants incurring a hardship withdrawal will not be eligible to make further contributions to the Plan for at least 12 months after the receipt of such distribution.

(h) Additional Events

In May 2010, the Company limited the amount of future contributions in MEMC Electronic Materials, Inc. common stock to 15% of a participant's total contributions. In addition, participants will not be allowed to transfer existing balances into MEMC Electronic Materials, Inc. common stock to the extent the amount invested would exceed 15% of the participant's account.

Effective as of November 30, 2010, the Plan was amended to merge the Solaicx Inc. 401(k) Plan into the Plan. In addition, effective as of December 31, 2010, the Plan was amended to merge the NVT, LLC 401(k) Profit Sharing & Trust into the Plan. Refer to Note 11.

(2) Summary of Accounting Policies

The following are the significant accounting policies followed by the Plan:

(a) Accounting Pronouncements

On July 1, 2009, the Plan adopted the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 105-10 ("ASC 105-10"). ASC 105-10 establishes the FASB Accounting Standards Codification (the "Codification") as the source of authoritative accounting principles recognized by the FASB to be applied by nongovernmental entities in the preparation of financial statements in conformity with U.S. generally accepted accounting principles ("US GAAP"). Rules and interpretive releases of the Securities and Exchange Commission ("SEC") under authority of federal securities laws are also sources of authoritative US GAAP for SEC registrants. All guidance contained in the Codification carries an equal level of authority. The Codification superseded all existing non-SEC accounting and reporting standards. All other non-grandfathered, non-SEC accounting literature not included in the Codification is non-authoritative. The adoption of this accounting standard did not have a material impact on the Plan's financial statements.

In January 2010, the FASB released Accounting Standards Update No. 2010-06 ("ASU 2010-06"), Fair Value Measurements and Disclosures (Topic 820): Improving Disclosures about Fair Value Measurement. The update requires the Company to (a) disclose transfers in and out of Levels One and Two, in addition to transfers in and out of Level Three and (b) separately disclose purchases, sales, issuances, and settlements of Level Three securities. Additionally, ASU 2010-06 clarifies the information the Company currently discloses regarding valuation techniques, inputs used in those valuation models, and at what level of detail fair value disclosures should be provided. ASU 2010-06 is effective for interim and annual reporting periods beginning after December 15, 2009, except for the disaggregation of the Level Three activity, which is effective for interim and annual periods beginning after December 15, 2010. ASU 2010-06 is not expected to materially impact the Plan's current fair value disclosures.

In September 2010, the FASB released Accounting Standards Update No. 2010-25 ("ASU 2010-25"), Plan Accounting — Defined Contribution Pension Plans (Topic 962): Reporting Loans to Participants by Defined Contribution Plans, which provides guidance on how loans to participants should be classified and measured by defined contribution pension plans. This update requires that participant loans be classified as notes receivable from participants, which are segregated from plan investments and measured at their principal balance plus any accrued but unpaid interest. ASU 2010-25 is effective for periods ending after December 15, 2010, with early adoption permitted. This update requires retrospective application to all periods presented. ASU 2010-25 was adopted for the year ended December 31, 2010 and retrospectively applied to December 31, 2009. Prior year amounts and disclosures have been revised to reflect the retrospective application of adopting ASU 2010-25. The adoption resulted in a reclassification of participant loans totaling \$5,107,113 from investments to notes receivable from participants as of December 31, 2009. There was no impact to the Plan's net assets as of December 31, 2010 or 2009 as a result of the adoption.

(b) Basis of Accounting

The accompanying financial statements have been prepared on the accrual basis of accounting, except for benefit payments, which are recorded when paid.

(c) Use of Estimates

The preparation of the accompanying financial statements in conformity with US GAAP requires the Plan Administrator to make estimates and assumptions that affect the reported amounts of

assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

(d) Valuation of Investments

Purchases and sales of investments are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

(e) Notes Receivable From Participants

Notes receivable from participants are measured at their unpaid principal balance plus any accrued but unpaid interest. Delinquent participant loans are reclassified as distributions based upon the terms of the plan document.

(f) Administrative Expenses

The reasonable expenses incident to the operation of the Plan shall be paid out of the trust fund, unless the Company, in its sole discretion, elects at any time to pay part or all of such expenses.

(g) Subsequent Events

Effective April 1, 2009, the Plan adopted an accounting standards update included in ASC 855, *Subsequent Events*. This update is intended to establish general standards of accounting for and disclosure of events that occur after the balance sheet date but before financial statements are issued or are available to be issued. It requires the disclosure of the date through which an entity has evaluated subsequent events and the basis for selecting that date; that is, whether that date represents the date the financial statements were issued or were available to be issued. The Plan has evaluated subsequent events or transactions that occurred after the balance sheet date of December 31, 2010 up through June 28, 2011, which is the date the accompanying financial statements and supplemental schedule were issued.

(3) Trust Fund Managed by the Trustee

The Plan assets are maintained in a trust fund. The investments and changes therein, of this trust fund have been reported to the Plan by Mercer (the "Trustee").

(4) Plan Termination

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA.

(5) Tax Status

The Internal Revenue Service issued its latest determination letter on October 29, 2008, which stated that the Plan and its underlying trust qualify under the applicable provisions of the Internal Revenue Code and, therefore, are exempt from federal income taxes. The Plan Administrator and the Plan's counsel believe that the Plan is currently designed and being operated in compliance with the applicable requirements of the Internal Revenue Code.

The Plan Administrator has analyzed the tax positions taken by the Plan and has concluded that as of December 31, 2010, there are no uncertain tax positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress. The Plan Administrator believes the Plan is no longer subject to income tax examinations for years prior to 2007.

(6) Investments

The following table presents investments that represent 5% or more of the net assets available for benefits at December 31.

	2010	2009
Investments:		
Putnam Stable Value Fund *	\$ 40,756,337	\$ 41,085,367
Ssga S&P 500 Fund	23,681,168	21,273,760
PIMCO Total Return Fund	14,515,247	11,522,782
MEMC Electronic Materials, Inc. common stock	11,303,038	10,586,626
T. Rowe Price Capital Appreciation Fund	10,798,403	8,997,659
Thornburg Int'L Value Fund	10,005,732	8,287,482

* Amount represents contract value for this investment.

Net Appreciation (Depreciation) in Fair Value

The Plan's investments (including investments bought, sold, and held during the year) appreciated in value by \$9,629,953 in 2010 and \$14,335,774 in 2009 as follows:

	2010	2009
Shares of registered investment companies	\$ 7,421,390	\$ 8,721,165
MEMC Electronic Materials, Inc. common stock	(1,733,436)	(390,614)
Brokerage accounts	792,472	1,513,998
Collective trusts	3,149,527	4,491,225
	<u>\$ 9,629,953</u>	<u>\$ 14,335,774</u>

(7) Fair Value Measurements

Fair value accounting guidance establishes a hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing the asset or liability, and are based on market data obtained from sources independent of the Plan. Unobservable inputs reflect assumptions market participants would use in pricing the asset or liability based on the best information available in the circumstances. The hierarchy is broken down into three levels based on the reliability of inputs as follows:

- Level 1—Valuations based on quoted prices in active markets for identical assets or liabilities that the Plan has the ability to access. Valuation adjustments and block discounts are not applied to Level 1 instruments. Because valuations are based on quoted prices that are readily and regularly available in an active market, valuation of these instruments does not entail a significant degree of judgment.
- Level 2—Valuations based on quoted prices in markets that are not active or for which all significant inputs are observable, either directly or indirectly for substantially the full term of the asset or liability. Valuations for Level 2 assets are prepared on an individual asset basis using data obtained from recent transactions for identical securities in inactive markets or pricing data from similar assets in active and inactive markets.
- Level 3—Valuations based on inputs that are unobservable and significant to the overall fair value measurement.

The Plan uses appropriate valuation techniques based on the available inputs to measure the fair value of its investments. When available, the Plan measures fair value using Level 1 inputs because they generally provide the most reliable evidence of fair value. Level 3 inputs are only

used when Level 1 or Level 2 inputs are not available. As of December 31, 2010, the Plan had no investments valued using Level 3 inputs. There have been no changes in the methodologies used at December 31, 2009 and 2010.

Level 1 Fair Value Measurements

- Investments in the stock fund, shares of a registered investment company, common stocks and mutual funds are valued based on the fair value as determined by quoted market price on a daily basis.

Level 2 Fair Value Measurements

- Investments in collective trusts are valued at net asset value as a practical expedient for fair value. The net asset value is based on the value of the underlying investments which are traded in an active market. The Plan does not have any collective trust investments with unfunded commitments or with any redemption restrictions.

The Plan's investments are reported at fair value in the accompanying statement of net assets available for benefits. There were no transfers into or out of Level 1 and Level 2 investments during the year ended December 31, 2010.

<u>December 31, 2010:</u>	Fair Value	Level 1	Level 2	Level 3
Shares of registered investment companies:				
US equity funds	\$ 41,133,472	\$ 41,133,472	\$ -	\$ -
International equity funds	10,005,732	10,005,732	-	-
Bond funds	14,515,247	14,515,247	-	-
Asset allocation funds	7,833,758	7,833,758	-	-
Other	307,381	307,381	-	-
Total shares of registered investment companies	<u>73,795,590</u>	<u>73,795,590</u>	-	-
MEMC Electronic Materials, Inc. common stock	11,303,038	11,303,038	-	-
Collective trusts:				
Fixed income funds	43,089,230	-	43,089,230	-
US equity funds	23,681,168	-	23,681,168	-
Total collective trusts	<u>66,770,398</u>	<u>-</u>	<u>66,770,398</u>	<u>-</u>
Brokerage accounts (a)	3,169,336	3,169,336	-	-
Total Investments	<u>\$ 155,038,362</u>	<u>\$ 88,267,964</u>	<u>\$ 66,770,398</u>	<u>\$ -</u>

December 31, 2009:	Fair Value	Level 1	Level 2	Level 3
Shares of registered investment companies:				
US equity funds	\$ 33,788,500	\$ 33,788,500	\$ -	\$ -
International equity funds	8,287,482	8,287,482	-	-
Bond funds	11,522,782	11,522,782	-	-
Asset allocation funds	4,151,338	4,151,338	-	-
Other	193,061	193,061	-	-
Total shares of registered investment companies	57,943,163	57,943,163	-	-
MEMC Electronic Materials, Inc. common stock	10,586,626	10,586,626	-	-
Collective trusts:				
Fixed income funds	42,862,313	-	42,862,313	-
US equity funds	21,273,760	-	21,273,760	-
Total collective trusts	64,136,073	-	64,136,073	-
Brokerage accounts (a)	2,376,864	2,376,864	-	-
Total Investments	\$ 135,042,726	\$ 70,906,653	\$ 64,136,073	\$ -

- (a) The brokerage account is invested in a variety of categories of common stocks, mutual funds and other investments as directed by participants.

Fair Value Presentation – The Plan holds an investment in the Ssga S&P 500 Fund, a collective trust fund. Subsequent to the issuance of the Plan’s December 31, 2009 financial statements, Plan management determined that the collective trust investment was incorrectly classified as a “Level 1” investment as required by ASC 820, Fair Value Measurements and Disclosures. Accordingly, the December 31, 2009 financial statements have been revised to reflect the Ssga S&P 500 Fund as a “Level 2” investment. This revision did not have any impact on the net assets available for benefits at December 31, 2009 or on the changes in net assets available for benefits for the year ended December 31, 2009.

(8) Investment Contract

The Plan has a benefit-responsive investment contract with Putnam Investments with account balances in the Putnam Stable Value Fund. Putnam Investments maintains the contributions in a general account. The account is credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The average yield and crediting interest rates for benefit-responsive investment contracts was 4.12% and 2.74% in 2010 and 2009, respectively.

(9) Related Party Transactions

Certain Plan investments are shares of registered investment companies and collective trusts managed by Putnam Investments which was the Plan Trustee for the year ended December 31, 2009. Because Putnam Investments was the Trustee in 2009, fees paid by the Plan for investment management services in 2009 of \$2,500 qualified as party-in-interest transactions. Mercer was the Trustee for the year ended December 31, 2010, and as a result fees paid by the Plan to Mercer for investment management services in 2010 of \$30,642 qualify as party-in-interest transactions.

(10) Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment

securities could occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statement of net assets available for benefits.

(11) Plan Mergers

The following plans have merged into the Plan during the year ended December 31, 2010:

<u>Effective date</u>	<u>Plan name</u>	<u>Amount</u>
November 30, 2010	Solaicx Inc. 401(k) Plan	\$ 631,104
December 31, 2010	NVT, LLC 401(k) Profit Sharing & Trust	6,106,719
		<u>\$ 6,737,823</u>

There was no merger activity for the Plan during 2009.

Schedule 1

MEMC RETIREMENT SAVINGS PLAN

Schedule H, Line 4i – Schedule of Assets (Held at End of Year)

December 31, 2010

Identity of issuer, borrower, lessor or similar party	Description of issue, maturity date, rate of interest, collateral, par or maturity value	Current Value
Putnam Stable Value Fund	Collective Trust	\$ 43,089,230
Ssga S&P 500 Fund	Collective Trust	23,681,168
PIMCO Total Return Fund	Mutual Fund	14,515,247
MEMC Electronic Materials, Inc*	Common Stock	11,303,038
T. Rowe Price Capital Appreciation Fund	Mutual Fund	10,798,403
Thornburg Int'L Value Fund	Mutual Fund	10,005,732
Invesco Van Kampen Small Cap Growth Fund	Mutual Fund	8,052,086
American Beacon Large Cap Value	Mutual Fund	6,996,462
Northern Small Cap Value Fund	Mutual Fund	6,082,203
Loomis Sayles Mid Cap Growth Fund	Mutual Fund	5,387,127
Janus Forty Fund	Mutual Fund	3,817,184
Brokerage Securities	Brokerage	3,169,336
Fidelity Freedom 2025 Fund	Mutual Fund	1,297,325
Fidelity Freedom 2030 Fund	Mutual Fund	1,110,255
Fidelity Freedom 2020 Fund	Mutual Fund	1,095,337
Fidelity Freedom 2015 Fund	Mutual Fund	1,054,415
Fidelity Freedom 2040 Fund	Mutual Fund	872,499
Fidelity Freedom 2035 Fund	Mutual Fund	797,816
Fidelity Freedom 2010 Fund	Mutual Fund	785,067
Fidelity Freedom 2045 Fund	Mutual Fund	459,185
Federated Prime Money Market	Mutual Fund	307,381
Fidelity Freedom 2050 Fund	Mutual Fund	256,689
Fidelity Freedom Income Fund	Mutual Fund	105,170
Putnam OTC & Emerging Growth Fund	Mutual Fund	7
Total Investments		\$ 155,038,362
Notes Receivable from Participants*	Interest rates range from 3.25% to 8.25%	\$ 5,157,727

* Represents a party-in-interest allowable by ERISA.

See accompanying report of independent registered public accounting firm.

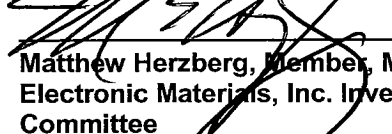
SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Plan Administrator has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

**MEMC Electronic Materials, Inc.
MEMC Retirement Savings Plan**

By: MEMC Electronic Materials, Inc.
Investment Committee

Plan Administrator

By: 

**Matthew Herzberg, Member, MEMC
Electronic Materials, Inc. Investment
Committee**

Date: June 28, 2011

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
23.1	Consent of Brown, Smith, Wallace, L.L.C.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to incorporation by reference in the Registration Statement (Form S-8 No. 333-19159) of our report dated June 28, 2011, relating to the statements of net assets available for benefits of the MEMC Retirement Savings Plan as of December 31, 2010 and 2009, the related statements of changes in net assets available for benefits for the years then ended, and the related supplemental schedule of assets (held at end of year) as of December 31, 2010, which report appears in the December 31, 2010 Annual Report on Form 11-K of the MEMC Retirement Savings Plan.



St. Louis, Missouri
June 28, 2011