

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**SCHEDULE 13G**

Under the Securities Exchange Act of 1934  
(Amendment No. )

MONOLITHIC PWR SYS INC

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(Name of Issuer)

COM

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(Title of Class of Securities)

609839105

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(CUSIP Number)

December 31, 2009

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(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)  
 Rule 13d-1(c)  
 Rule 13d-1(d)

The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be 'filed' for the purpose of Section 18 of the Securities Exchange Act of 1934 ('Act') or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 609839105

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**Person 1**

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1. (a) Names of Reporting Persons.  
Wells Fargo and Company  
(b) Tax ID  
41-0449260
- 

2. Check the Appropriate Box if a Member of a Group (See Instructions)  
(a)   
(b)
-

3. SEC Use Only .....

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4. Citizenship or Place of Organization Delaware

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|   |                                     |
|---|-------------------------------------|
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5. Sole Voting Power 1,929,876      |
|   | 6. Shared Voting Power 1,914        |
|   | 7. Sole Dispositive Power 1,971,635 |
|   | 8. Shared Dispositive Power 5,000   |

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9. Aggregate Amount Beneficially Owned by Each Reporting Person 1,985,593

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10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

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11. Percent of Class Represented by Amount in Row (9) 5.69 %

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12. Type of Reporting Person (See Instructions)

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**Item 1.**

- (a) Name of Issuer  
MONOLITHIC PWR SYS INC
- (b) Address of Issuer's Principal Executive Offices  
6409 Guadalupe Mines Road, San Jose, CA 95120

**Item 2.**

- (a) Name of Person Filing  
Wells Fargo and Company
- (b) Address of Principal Business Office or, if none, Residence  
420 Montgomery Street, San Francisco, CA 94104
- (c) Citizenship  
Delaware
- (d) Title of Class of Securities  
COM
- (e) CUSIP Number  
609839105

**Item 3. If this statement is filed pursuant to 240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:**

- (a)  Broker or dealer registered under section 15 of the Act (15 U.S.C. 78c)
- (b)  Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).

- (c)  Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d)  Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C 80a-8).
- (e)  An investment adviser in accordance with 240.13d-1(b)(1)(ii)(E);
- (f)  An employee benefit plan or endowment fund in accordance with 240.13d-1(b)(1)(ii)(F);
- (g)  A parent holding company or control person in accordance with 240.13d-1(b)(1)(ii)(G);
- (h)  A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i)  A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j)  Group, in accordance with 240.13d-1(b)(1)(ii)(J).

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned: 1,985,593
- (b) Percent of class: 5.69%
- (c) Number of shares as to which the person has:
  - (i) Sole power to vote or to direct the vote 1,929,876
  - (ii) Shared power to vote or to direct the vote 1,914
  - (iii) Sole power to dispose or to direct the disposition of 1,971,635
  - (iv) Shared power to dispose or to direct the disposition of 5,000

**Person 2**

- 1. (a) Names of Reporting Persons.  
Wells Capital Management Incorporated
- (b) Tax ID  
95-3692822

- 2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b)

3. SEC Use Only .....

4. Citizenship or Place of Organization California

Number of Shares Beneficially Owned by Each Reporting Person With

5. Sole Voting Power 171,070

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6. Shared Voting Power 0

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7. Sole Dispositive Power 1,795,630

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8. Shared Dispositive Power 0

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9. Aggregate Amount Beneficially Owned by Each Reporting Person 1,795,630

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10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

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11. Percent of Class Represented by Amount in Row (9) 5.14 %

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12. Type of Reporting Person (See Instructions)

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IA

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**Item 1.**

- (a) Name of Issuer  
MONOLITHIC PWR SYS INC
- (b) Address of Issuer's Principal Executive Offices  
6409 Guadalupe Mines Road, San Jose, CA 95120

**Item 2.**

- (a) Name of Person Filing  
Wells Capital Management Incorporated
- (b) Address of Principal Business Office or, if none, Residence  
525 Market St, 10th Floor, San Francisco, CA 94105
- (c) Citizenship  
California
- (d) Title of Class of Securities  
COM
- (e) CUSIP Number  
609839105

**Item 3. If this statement is filed pursuant to 240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:**

- (a)  Broker or dealer registered under section 15 of the Act (15 U.S.C. 78c)
- (b)  Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c)  Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d)  Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C 80a-8).

- (e)  An investment adviser in accordance with 240.13d-1(b)(1)(ii)(E);  
]
- (f)  An employee benefit plan or endowment fund in accordance with 240.13d-1(b)(1)(ii)(F);
- (g)  A parent holding company or control person in accordance with 240.13d-1(b)(1)(ii)(G);
- (h)  A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i)  A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j)  Group, in accordance with 240.13d-1(b)(1)(ii)(J).

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned: 1,795,630
- (b) Percent of class: 5.14%
- (c) Number of shares as to which the person has:
  - (i) Sole power to vote or to direct the vote 171,070
  - (ii) Shared power to vote or to direct the vote 0
  - (iii) Sole power to dispose or to direct the disposition of 1,795,630
  - (iv) Shared power to dispose or to direct the disposition of 0

**Item 5. Ownership of Five Percent or Less of a Class**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following.[ ].

**Item 6. Ownership of More than Five Percent on Behalf of Another Person.**

Not applicable

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person.**

See Exhibit B

**Item 8. Identification and Classification of Members of the Group**

Not applicable.

**Item 9. Notice of Dissolution of Group**

Not applicable.

**Item 10. Certification**

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

### SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

January 19, 2010

\_\_\_\_\_  
Date

/s/ Jane E. Washington

\_\_\_\_\_  
Signature

Jane E. Washington, VP Trust Operations

\_\_\_\_\_  
Name/Title

### Exhibit A

#### EXPLANATORY NOTE

This Schedule 13G is filed by Wells Fargo & Company on its own behalf and on behalf of any subsidiaries listed in Exhibit B. Aggregate beneficial ownership reported by Wells Fargo & Company under Item 9 on page 2 is on a consolidated basis and includes any beneficial ownership separately reported herein by a subsidiary.

### Exhibit B

The Schedule 13G to which this attachment is appended is filed by Wells Fargo & Company on behalf of the following subsidiaries:

Wells Capital Management Incorporated (1)  
Calibre Advisory Services, Inc, (1)  
Evergreen Investment Management Company, LLC. (1)  
Wells Fargo Advisors, LLC. (2)  
Wells Fargo Delaware Trust Company, National Association (3)  
Wells Fargo Advisors Financial Network, LLC. (2)  
Wachovia Bank, National Association (3)  
Wells Fargo Funds Management, LLC (1)

(1) Classified as a registered investment advisor in accordance with Regulation 13d-1(b)(1)(ii)(E).

(2) Classified as a broker dealer in accordance with Regulation 13d-1(b)(1)(ii)(A).

(3) Classified as a bank in accordance with Regulation 13d-1(b)(1)(ii)(B).

### Exhibit C

AGREEMENT

The undersigned hereby agree that the statement on Schedule 13G to which this Agreement is attached shall be filed by Wells Fargo & Company on its own behalf and on behalf of Wells Capital Management Incorporated

Date: January 19, 2010

WELLS FARGO & COMPANY

By: /s/Jane E. Washington, VP Trust Operations

Wells Capital Management Incorporated

By: /s/Nobuko Nagata, Gabe Ceci, Mai Shiver, AVP, Trust Operations

**Attention: Intentional misstatements or omissions of fact constitute Federal criminal violations  
(See 18 U.S.C. 1001)**