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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Conservation Service Provider  
Registration Application Package (Renewal)**

**List of Contents**

- **Check for \$25 for renewal fee**
- **Electronic version of application and attachments on CD-ROM**
- **Registration Application and Attachments** (one original plus one copy)
  - Signed and Notarized Affidavit
  - Completed Application Form
  - *Application Form Page 2 Attachments:*
    - Pennsylvania Department of State filing – Certificate of Good Standing (*for Form Item 5*)
    - Itron, Inc. Articles of Incorporation (*for Form Item 5*)
    - 2013 Itron Officers – Directors List (*for Form Item 5 and Item 14.B*)
  - *Application Form Page 3 Attachments:*
    - Itron Consulting and Analysis Brochure (*for Form Item 8*)
    - Tax Certification Statement (*for Form Item 9*)
  - *Application Form Page 4 Attachments:*
    - Itron 2012 Annual Report (*for Form Item 14.A*)
    - Certificate of Liability Insurance (*for Form Item 14.A*)
    - Itron 2013 Proxy Statement to Shareholders (*for Form Item 14.B*)
    - List of Principal Itron C&A Staff (*for Form Item 15*)
    - Resumes of Principal Itron C&A Staff (*for Form Item 15*)
    - Trade Association Memberships List (*for Form Item 15*)
    - Corporate Affiliations List (*for Form Item 15*)

**Itron**

*SECRET - See 90101  
do not release to press or public*

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Conservation Service Provider  
Registration Application Package  
(Renewal)**

Submitted to:

Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, Pennsylvania 17120

Submitted by:

Itron, Inc.  
2111 N Molter Road  
Liberty Lake, Washington 99019

July 8, 2013

**ORIGINAL**

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    - Resumes of Principal Itron C&A Staff (*for Form Item 15*)
      - Michael Rufo
      - Kris Bradley
      - Rachel Harcharik
      - Al Lutz
      - Jennifer Fagan
    - Trade Association Memberships List (*for Form Item 15*)
    - Corporate Affiliations List (*for Form Item 15*)

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[Commonwealth/State] of Washington : PA PUBLIC UTILITY COMMISSION  
: ss. SECRETARY'S BUREAU

County of Spokane :

Craig Hiteshew, Affiant, being duly [sworn/affirmed] according to law, deposes and says that:

[He/she is the Senior Director of Finance (Office of Affiant) of Itron, Inc. (Name of Applicant);]

[That he/she is authorized to and does make this affidavit for said Applicant;]

That the Applicant herein Itron, Inc. has the burden of producing information and supporting documentation demonstrating its technical and financial fitness to be registered as a conservation service provider pursuant to Act 129 of 2008.

That the Applicant herein Itron, Inc. has answered the questions on the application correctly, truthfully, and completely and provided supporting documentation as required.

That the Applicant herein Itron, Inc. acknowledges that it is under a duty to update information provided in answer to questions on this application and contained in supporting documents.

That the Applicant herein Itron, Inc. acknowledges that it is under a duty to supplement information provided in answer to questions on this application and contained in supporting documents as requested by the Commission.

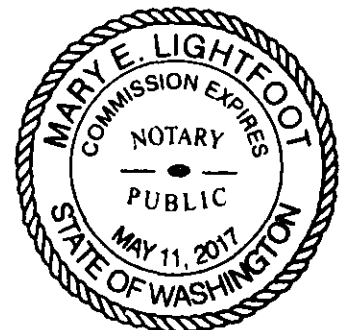
That the facts above set forth are true and correct to the best of his/her knowledge, information, and belief, and that he/she expects said Applicant to be able to prove the same at hearing.

Craig A. Hiteshew  
Signature of Affiant

Sworn and subscribed before me this 2<sup>nd</sup> day of July, 2013.

Mary E. Lightfoot  
Signature of official administering oath

My commission expires May 11, 2017



## BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of Itron, Inc., d/b/a Itron, Inc., for registration as a Conservation Service Provider ("CSP") in the Commonwealth of Pennsylvania.

To the Pennsylvania Public Utility Commission:

1. **IDENTITY OF THE APPLICANT:** The legal name, address, telephone number, FAX number and email address of the Applicant are:

Itron, Inc., 2111 N Molter Road, Liberty Lake, WA 99019.  
Tel: 509-924-9900 FAX: 509-891-3355 Website: www.itron.com

Please identify any predecessor(s) of the Applicant and provide other names under which the Applicant has operated as a CSP within the preceding five (5) years, including name, address, and telephone number.

N/A

2. **CONTACT PERSON:** The name, title, address, telephone number, FAX number and email address of the person

Al Lutz, Director, 1111 Broadway, Suite 1800, Oakland, CA 94607  
Tel: 510-844-2831 FAX: 510-844-2900 E-mail: Consult@itron.com

3. **REGISTERED AGENT:** If the Applicant does not maintain a principal office in the Commonwealth, the required name, address, telephone number and FAX number of the Applicant's Registered Agent in the Commonwealth are:

National Registered Agent, Inc., 600 North Second Street, Suite 401, Harrisburg, PA 17101  
Tel: 800-544-9050 FAX: 717-238-8232

4. **FICTITIOUS NAME:** (select and complete appropriate statement)

The Applicant will be using a fictitious name or doing business as ("d/b/a"):

Provide proof of compliance with appropriate Pennsylvania Department of State filing requirements.

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or

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The Applicant will not be using a fictitious name.

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

5. **BUSINESS ENTITY AND DEPARTMENT OF STATE FILINGS:** (select and complete appropriate statement)

The Applicant is a sole proprietor.

If the Applicant is located outside the Commonwealth, provide proof of compliance with 15 Pa. C.S. §4124 relating to Department of State filing requirements.

or

The Applicant is a:

- domestic general partnership (\*)
- domestic limited partnership (15 Pa. C.S. §8511)
- foreign general or limited partnership (15 Pa. C.S. §4124)
- domestic limited liability partnership (15 Pa. C.S. §8201)
- foreign limited liability general partnership (15 Pa. C.S. §8211)
- foreign limited liability limited partnership (15 Pa. C.S. §8211)

Provide proof of compliance with appropriate Department of State filing requirements as indicated above. Please attach a copy of the proof of compliance to the Application.

Give name, d/b/a, and address of partners. If any partner is not an individual, identify the business nature of the partner entity and identify its partners or officers.

\* If a corporate partner in the Applicant's domestic partnership is not domiciled in Pennsylvania, attach a copy of the Applicant's Department of State filing pursuant to 15 Pa. C.S. §4124.

**OR**

X The Applicant is a:

- domestic corporation (none)
- X foreign corporation (15 Pa. C.S. §4124)
- domestic limited liability company (15 Pa. C.S. §8913)
- foreign limited liability company (15 Pa. C.S. §8981)
- Other \_\_\_\_\_

Provide proof of compliance with appropriate Department of State filing requirements as indicated above. Please attach a copy of the proof of compliance to the Application. Additionally, provide a copy of the Applicant's Articles of Incorporation. *(Please see attached Certificate of Good Standing and Articles of Incorporation)*

Give name, title, telephone number and address of officers, partners or directors. *(Please see attached list of 2013 Officers and Directors)*

The Applicant is incorporated in the state of Washington (date of incorporation: 12/1/1977).

6. **AFFILIATES AND PREDECESSORS WITHIN PENNSYLVANIA:** (select and complete appropriate statement)

Affiliate(s) of the Applicant doing business in Pennsylvania as a CSP or an electric distribution company ("EDC") are: N/A

Give name and address of the affiliate(s). N/A

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF STATE

JULY 3, 2013

TO ALL WHOM THESE PRESENTS SHALL COME, GREETING:

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I DO HEREBY CERTIFY THAT,

ITRON, INC.

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

is duly qualified as a Foreign Corporation under the laws of the Commonwealth of Pennsylvania and remains a subsisting corporation so far as the records of this office show, as of the date herein.

I DO FURTHER CERTIFY THAT, This Subsistence Certificate shall not imply that all fees, taxes, and penalties owed to the Commonwealth of Pennsylvania are paid.



IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the Seal of the Secretary's Office to be affixed, the day and year above written.

*Carol A. Riddle*

Secretary of the Commonwealth

Certification Number: 11184606-1

Verify this certificate online at <http://www.corporations.state.pa.us/corp/soskb/verify.asp>

STATE OF WASHINGTON



SECRETARY OF STATE

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ITRON, INC.

C/O CT CORPORATION SYSTEM  
ATTN: KC GARIEPY  
520 PIKE ST STE 2610  
SEATTLE WA 98101

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

AMENDMENT

I, Sam Reed, Secretary of State of the State of Washington and custodian of its seal, hereby certify that documents meeting Washington statutory requirements have been filed and processed with the Secretary of State on behalf of:

ITRON, INC.

A Washington Profit Corporation  
UBI: 600 337 134  
Filing Date: December 12, 2002

Amending and Restating Articles.



Given under my hand and the seal of the State of Washington at Olympia, the State Capital.

A handwritten signature in cursive script that reads "Sam Reed".

Sam Reed, Secretary of State

# STATE of WASHINGTON



## SECRETARY of STATE

*I, SAM REED, Secretary of State of the State of Washington and custodian of its seal,*

hereby certify by this certificate that the attached is a true and correct copy of

ARTICLES OF AMENDMENT

of

**ITRON, INC.**

Amended & Restated

as filed in this office on December 12, 2002.



Date: December 12, 2002

*Given under my hand and the Seal of the State  
of Washington at Olympia, the State Capital*

A handwritten signature in cursive script that reads "Sam Reed".

*Sam Reed, Secretary of State*

FILED  
SECRETARY OF STATE  
DEC 12 2002  
STATE OF WASHINGTON

**AMENDED AND RESTATED  
ARTICLES OF INCORPORATION**

**OF**

**ITRON, INC.**

Pursuant to RCW 23B.10.070, the following constitutes Amended and Restated Articles of Incorporation of the undersigned, a Washington corporation.

**ARTICLE 1. NAME**

The name of this corporation is Itron, Inc.

**ARTICLE 2. SHARES**

**2.1 Authorized Capital**

The total number of shares which the corporation is authorized to issue is 85,000,000, consisting of 75,000,000 shares of Common Stock without par value and 10,000,000 shares of Preferred Stock without par value. The Common Stock is subject to the rights and preferences of the Preferred Stock as hereinafter set forth.

**2.2 Issuance of Preferred Stock in Series**

The Preferred Stock may be issued from time to time in one or more series in any manner permitted by law and the provisions of these Articles of Incorporation of the corporation, as determined from time to time by the Board of Directors and stated in the resolution or resolutions providing for the issuance thereof, prior to the issuance of any shares thereof. The Board of Directors shall have the authority to fix and determine and to amend, subject to the provisions hereof, the designation, preferences, limitations and relative rights of the shares of any series that is wholly unissued or to be established. Unless otherwise specifically provided in the resolution establishing any series, the Board of Directors shall further have the authority, after the issuance of shares of a series whose number it has designated, to amend the resolution establishing such series to decrease the number of shares of that series, but not below the number of shares of such series then outstanding.

**2.3 Dividends**

The holders of shares of the Preferred Stock shall be entitled to receive dividends, out of the funds of the corporation legally available therefor, at the rate and at the time or times, whether cumulative or noncumulative, as may be provided by the Board of Directors in designating a particular series of Preferred Stock. If such dividends on the Preferred Stock shall be cumulative, then if dividends shall not have been paid, the deficiency shall be fully paid or the dividends declared and set apart for payment at such rate, but without interest on

cumulative dividends, before any dividends on the Common Stock shall be paid or declared and set apart for payment. The holders of the Preferred Stock shall not be entitled to receive any dividends thereon other than the dividends referred to in this section.

#### **2.4 Redemption**

The Preferred Stock may be redeemable at such price, in such amount, and at such time or times as may be provided by the Board of Directors in designating a particular series of Preferred Stock. In any event, such Preferred Stock may be repurchased by the corporation to the extent legally permissible.

#### **2.5 Liquidation**

In the event of any liquidation, dissolution, or winding up of the affairs of the corporation, whether voluntary or involuntary, then, before any distribution shall be made to the holders of the Common Stock, the holders of the Preferred Stock at the time outstanding shall be entitled to be paid the preferential amount or amounts per share as may be provided by the Board of Directors in designating a particular series of Preferred Stock and dividends accrued thereon to the date of such payment. The holders of the Preferred Stock shall not be entitled to receive any distributive amounts upon the liquidation, dissolution, or winding up of the affairs of the corporation other than the distributive amounts referred to in this section, unless otherwise provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.6 Conversion**

Shares of Preferred Stock may be convertible into Common Stock of the corporation upon such terms and conditions, at such rate and subject to such adjustments as may be provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.7 Voting Rights**

Holders of Preferred Stock shall have such voting rights as may be provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.8 Designation of Rights and Preferences of Series R Participating Cumulative Preferred Stock**

The following series of Preferred Stock is hereby designated, which series shall have the rights, preferences and privileges and limitations set forth below:

##### **2.8.1 Designation of Series R Participating Cumulative Preferred Stock**

The shares of such series shall be designated the "Series R Participating Cumulative Preferred Stock" (the "Series R Preferred Stock"), without par value. The number of shares

initially constituting the Series R Preferred Stock shall be 1,000,000; *provided, however*, if more than a total of 1,000,000 shares of Series R Preferred Stock shall be issuable upon the exercise of Rights (the "Rights") issued pursuant to the Rights Agreement dated as of December 11, 2002 between the corporation and Mellon Investor Services LLC, as Rights Agent (the "Rights Agreement"), the corporation's Board of Directors, pursuant to Section 23B.06.020 of the Revised Code of Washington, shall direct by resolution or resolutions that Articles of Amendment be properly executed and filed with the Washington Secretary of State providing for the total number of shares of Series R Preferred Stock authorized for issuance to be increased (to the extent that the Amended and Restated Articles of Incorporation then permits) to the largest number of whole shares (rounded up to the nearest whole number) issuable upon exercise of such Rights. In addition, such number of shares may be decreased by resolution of the Board of Directors; *provided, however*, that no decrease shall reduce the number of shares of Series R Preferred Stock to a number less than the number of shares then outstanding plus the number of shares reserved for issuance upon the exercise of outstanding options, rights or warrants or upon the conversion of any outstanding securities issued by the corporation convertible into Series R Preferred Stock.

### **2.8.2 Dividends and Distributions**

(a) Subject to the prior and superior rights of the holders of shares of any other series of Preferred Stock or other class of capital stock of the corporation ranking prior and superior to the shares of Series R Preferred Stock with respect to dividends, the holders of shares of Series R Preferred Stock shall be entitled to receive, when, as, and if declared by the Board of Directors, out of the assets of the corporation legally available therefor, quarterly dividends payable in cash on the last day of each fiscal quarter in each year, or such other dates as the corporation's Board of Directors shall approve (each such date being referred to in this Designation as a "Quarterly Dividend Payment Date"), commencing on the first Quarterly Dividend Payment Date after the first issuance of a share or a fraction of a share of Series R Preferred Stock, in an amount per share (rounded to the nearest cent) equal to the greater of (i) \$0.01 and (ii) the Formula Number (as hereinafter defined) then in effect times the cash dividends then to be paid on each share of Common Stock. In addition, if the corporation shall pay any dividend or make any distribution on the Common Stock payable in assets, securities or other forms of noncash consideration (other than dividends or distributions solely in shares of Common Stock), then, in each such case, the corporation shall simultaneously pay or make on each outstanding whole share of Series R Preferred Stock a dividend or distribution in like kind equal to the Formula Number then in effect times such dividend or distribution on each share of Common Stock. As used in this Designation and in the Rights Agreement, the "Formula Number" shall be 100; *provided, however*, that if at any time after December 11, 2002 the corporation shall (i) declare or pay any dividend on the Common Stock payable in shares of Common Stock or make any distribution on the Common Stock in shares of Common Stock, (ii) subdivide (by a stock split or otherwise) the outstanding shares of Common Stock into a larger number of shares of Common Stock, or (iii) combine (by a reverse stock split or otherwise) the outstanding shares of Common Stock into a smaller number of shares of Common Stock, then in each such event the Formula Number shall be adjusted to a number determined by multiplying the Formula Number in

effect immediately prior to such event by a fraction, the numerator of which is the number of shares of Common Stock that are outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that are outstanding immediately prior to such event (and rounding the result to the nearest whole number); and *provided further*, that if at any time after December 11, 2002 the corporation shall issue any shares of its capital stock in a merger, reclassification or change of the outstanding shares of Common Stock, then in each such event the Formula Number shall be appropriately adjusted to reflect such merger, reclassification or change so that each share of Preferred Stock continues to be the economic equivalent of a Formula Number of shares of Common Stock prior to such merger, reclassification or change.

(b) The Corporation shall declare a dividend or distribution on the Series R Preferred Stock as provided in Section 2.8.2(a) immediately prior to or at the same time it declares a dividend or distribution on the Common Stock (other than a dividend or distribution solely in shares of Common Stock); *provided, however*, that in the event no dividend or distribution (other than a dividend or distribution in shares of Common Stock) shall have been declared on the Common Stock during the period between any Quarterly Dividend Payment Date and the next subsequent Quarterly Dividend Payment Date, a dividend of \$0.01 per share on the Series R Preferred Stock shall nevertheless be payable on such subsequent Quarterly Dividend Payment Date. The Corporation's Board of Directors may fix a record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a dividend or distribution declared thereon, which record date shall be the same as the record date for any corresponding dividend or distribution on the Common Stock and which shall not be more than 60 days prior to the date fixed for payment thereof.

(c) Dividends shall begin to accrue and be cumulative on outstanding shares of Series R Preferred Stock from and after the Quarterly Dividend Payment Date next preceding the date of original issue of such shares of Series R Preferred Stock; *provided, however*, that dividends on such shares that are originally issued after the record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a quarterly dividend on or prior to the next succeeding Quarterly Dividend Payment Date shall begin to accrue and be cumulative from and after such Quarterly Dividend Payment Date. Notwithstanding the foregoing, dividends on shares of Series R Preferred Stock that are originally issued prior to the record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a quarterly dividend on or prior to the first Quarterly Dividend Payment Date shall be calculated as if cumulative from and after the last day of the fiscal quarter (or such other Quarterly Dividend Payment Date as the corporation's Board of Directors shall approve) next preceding the date of original issuance of such shares. Accrued but unpaid dividends shall not bear interest. Dividends paid on the shares of Series R Preferred Stock in an amount less than the total amount of such dividends at the time accrued and payable on such shares shall be allocated pro rata on a share-by-share basis among all such shares at the time outstanding.

(d) So long as any shares of Series R Preferred Stock are outstanding, no dividends or other distributions shall be declared, paid or distributed, or set aside for payment

or distribution, on the Common Stock unless, in each case, the dividend required by this Section 2.8.2 to be declared on the Series R Preferred Stock shall have been declared.

(e) The holders of shares of Series R Preferred Stock shall not be entitled to receive any dividends or other distributions except as provided in this Designation.

### **2.8.3 Voting Rights**

The holders of shares of Series R Preferred Stock shall have the following voting rights:

(a) Each holder of Series R Preferred Stock shall be entitled to a number of votes equal to the Formula Number then in effect for each share of Series R Preferred Stock held of record on each matter on which holders of the Common Stock or shareholders generally are entitled to vote, multiplied by the maximum number of votes per share that any holders of the Common Stock or shareholders generally then have with respect to such matter (assuming any holding period or other requirement to vote a greater number of shares is satisfied).

(b) Except as otherwise provided in this Designation or by applicable law, the holders of shares of Series R Preferred Stock and the holders of shares of Common Stock and any other capital stock of the corporation having general voting rights shall vote together as one class for the election of directors of the corporation and on all other matters submitted to a vote of shareholders of the corporation.

(c) Except as provided in this Designation or by applicable law, holders of Series R Preferred Stock shall have no special voting rights and their consent shall not be required (except to the extent they are entitled to vote with holders of Common Stock as set forth in this Designation) for authorizing or taking any corporate action.

### **2.8.4 Certain Restrictions**

(a) Whenever quarterly dividends or other dividends or distributions payable on the Series R Preferred Stock as provided in Section 2.8.2 are in arrears, thereafter and until all accrued and unpaid dividends and distributions, whether or not declared, on shares of Series R Preferred Stock outstanding shall have been paid in full, the corporation shall not:

(i) declare or pay dividends on, make any other distributions on, or redeem or purchase or otherwise acquire for consideration any shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series R Preferred Stock;

(ii) declare or pay dividends on or make any other distributions on any shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock, except dividends paid

ratably on the Series R Preferred Stock and all such parity stock on which dividends are payable or in arrears in proportion to the total amounts to which the holders of all such shares are then entitled;

(iii) redeem or purchase or otherwise acquire for consideration shares of any stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock; *provided, however*, that the corporation may at any time redeem, purchase or otherwise acquire shares of any such junior stock in exchange for shares of any stock of the corporation ranking junior (either as to dividends or upon dissolution, liquidation or winding up) to the Series R Preferred Stock; or

(iv) redeem or purchase or otherwise acquire for consideration any shares of Series R Preferred Stock, or any shares of stock ranking on a parity with the Series R Preferred Stock, except in accordance with a purchase offer made in writing or by publication (as determined by the corporation's Board of Directors) to all holders of such shares upon such terms as the corporation's Board of Directors, after consideration of the respective annual dividend rates and other relative rights and preferences of the respective Preferred Stock classes, shall determine in good faith will result in fair and equitable treatment among the respective series or classes.

(b) The corporation shall not permit any subsidiary of the corporation to purchase or otherwise acquire for consideration any shares of stock of the corporation unless the corporation could, under paragraph (a) of this Section 2.8.4, purchase or otherwise acquire such shares at such time and in such manner.

### **2.8.5 Liquidation Rights**

Upon the liquidation, dissolution or winding up of the corporation, whether voluntary or involuntary, no distribution shall be made to (a) the holders of shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series R Preferred Stock unless, prior thereto, the holders of shares of Series R Preferred Stock shall have received an amount equal to the greater of (i) \$.01 per share and (ii) the accrued and *unpaid dividends and distributions thereon, whether or not declared, to the date of such payment*, plus an aggregate amount per share equal to the Formula Number then in effect times the aggregate amount to be distributed per share to holders of Common Stock or (b) the holders of shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock, except distributions made ratably on the Series R Preferred Stock and all other such parity stock in proportion to the total amounts to which the holders of all such shares are entitled upon such liquidation, *dissolution or winding up*.

### **2.8.6 Consolidation, Merger, etc.**

In case the corporation shall enter into any consolidation, merger, combination or other transaction in which the shares of Common Stock are exchanged for or changed into other stock or securities, cash and/or any other property, then in any such case the then outstanding shares of Series R Preferred Stock shall at the same time be similarly exchanged or changed into an amount per share equal to the Formula Number then in effect times the aggregate amount of stock, securities, cash and/or any other property (payable in kind), as the case may be, into which or for which each share of Common Stock is exchanged or changed. In the event both this Section 2.8.6 and Section 2.8.2 appear to apply to a transaction, this Section 2.8.6 will control.

### **2.8.7 No Redemption; No Sinking Fund**

(a) The shares of Series R Preferred Stock shall not be subject to redemption by the corporation or at the option of any holder of Series R Preferred Stock; *provided, however*, that the corporation may purchase or otherwise acquire outstanding shares of Series R Preferred Stock in the open market or by offer to any holder or holders of shares of Series R Preferred Stock.

(b) The shares of Series R Preferred Stock shall not be subject to or entitled to the operation of a retirement or sinking fund.

### **2.8.8 Ranking**

The Series R Preferred Stock shall rank junior to all other series of Preferred Stock of the corporation, unless the corporation's Board of Directors shall specifically determine otherwise in fixing the powers, preferences and relative, participating, optional and other special rights of the shares of such Preferred Stock and the qualifications, limitations and restrictions thereof.

### **2.8.9 Fractional Shares**

The Series R Preferred Stock shall be issuable upon exercise of the Rights issued pursuant to the Rights Agreement in whole shares or in any fractional share that is one one-hundredth (1/100th) of a share or any integral multiple of such fraction, and shall entitle the holder, in proportion to such holder's fractional shares, to receive dividends, exercise voting rights, participate in distributions and have the benefit of all other rights of holders of Series R Preferred Stock. In lieu of fractional shares, the corporation, prior to the first issuance of a share or a fractional share of Series R Preferred Stock, may elect to (a) make a cash payment as provided in the Rights Agreement for a fractional share other than one one-hundredth (1/100th) of a share or any integral multiple thereof or (b) issue depository receipts evidencing such authorized fractional share of Series R Preferred Stock pursuant to an appropriate agreement between the corporation and a depository selected by the corporation; *provided, however*, that such agreement shall provide that the holders of such depository

receipts shall have all the rights, privileges and preferences to which they are entitled as holders of the Series R Preferred Stock.

#### **2.8.10 Reacquired Shares**

Any shares of Series R Preferred Stock purchased or otherwise acquired by the corporation in any manner whatsoever shall be retired and canceled promptly after the acquisition thereof. All such shares shall upon their cancellation become authorized but unissued shares of Preferred Stock, without designation as to series until such shares are once more designated as part of a particular series by the corporation's Board of Directors pursuant to the provisions of Article 2 of the Amended and Restated Articles of Incorporation.

#### **2.8.11 Amendment**

None of the powers, preferences and relative, participating, optional and other special rights of the Series R Preferred Stock as provided herein shall be amended in any manner that would alter or change the powers, preferences, rights or privileges of the holders of Series R Preferred Stock so as to affect them adversely without the affirmative vote of the holders of at least two-thirds of the outstanding shares of Series R Preferred Stock, voting as a separate class.

### **ARTICLE 3. REGISTERED OFFICE AND AGENT**

The name of the registered agent of this corporation and the address of its registered office are as follows:

Lawco of Washington, Inc.  
1201 Third Avenue, 40th Floor  
Seattle, Washington 98101-3099

### **ARTICLE 4. PREEMPTIVE RIGHTS**

No preemptive rights shall exist with respect to shares of stock or securities convertible into shares of stock of this corporation.

### **ARTICLE 5. CUMULATIVE VOTING**

The right to cumulate votes in the election of Directors shall not exist with respect to shares of stock of this corporation.

### **ARTICLE 6. DIRECTORS**

The number of Directors of this corporation shall be determined in the manner provided by the Bylaws and may be increased or decreased from time to time in the manner provided therein. The Directors of this corporation may be removed only for cause in the manner provided by the Bylaws.

At the 1992 annual election of Directors, the Board of Directors shall be divided into three classes (said classes to be as equal in number as may be possible) with the following classes being elected for the terms set forth below:

<u>Class</u>	<u>Term</u>
Class 1	1 year
Class 2	2 years
Class 3	3 years

Subsequent to the 1992 annual election of Directors, a Director's term shall be three years, and each Director shall serve for the term for which he or she was elected, or until his or her successor shall have been elected and qualified, or until his or her death, resignation or removal from office; provided, however, that despite the expiration of a Director's term, a Director shall continue to serve until his or her successor is elected or until there is a decrease in the authorized number of Directors. Directors need not be shareholders of the corporation or residents of the State of Washington and need not meet any other qualifications.

#### **ARTICLE 7. BYLAWS**

The Board of Directors shall have the power to adopt, amend or repeal the Bylaws of this corporation, subject to the power of the shareholders to amend or repeal such Bylaws. The shareholders shall also have the power to amend or repeal the Bylaws of this corporation and to adopt new Bylaws.

#### **ARTICLE 8. AMENDMENTS TO ARTICLES OF INCORPORATION**

This corporation reserves the right to amend or repeal any of the provisions contained in these Amended and Restated Articles of Incorporation in any manner now or hereafter permitted by law, and the rights of the shareholders of this corporation are granted subject to this reservation.

#### **ARTICLE 9. LIMITATION OF DIRECTOR LIABILITY**

To the full extent that the Washington Business Corporation Act, as it exists on the date hereof or may hereafter be amended, permits the limitation or elimination of the liability of Directors, a Director of this corporation shall not be liable to this corporation or its shareholders for monetary damages for conduct as a Director. Any amendments to or repeal of this Article 9 shall not adversely affect any right or protection of a Director of this corporation for or with respect to any acts or omissions of such Director occurring prior to such amendment or repeal.

Dated: December 11, 2002

  
\_\_\_\_\_  
MariLyn R. Blair, Secretary

**CERTIFICATE ACCOMPANYING  
AMENDED AND RESTATED  
ARTICLES OF INCORPORATION  
OF  
ITRON, INC.**

**FILED  
SECRETARY OF STATE  
DEC 12 2002  
STATE OF WASHINGTON**

Pursuant to RCW 23B.10.070, the undersigned hereby certifies on behalf of Itron, Inc., a Washington corporation (the "Corporation"), as follows:

1. The name of the Corporation is Itron, Inc.
2. The Articles of Incorporation of the Corporation, as amended, are amended and restated in their entirety to read as set forth in the attached Amended and Restated Articles of Incorporation.
3. The amendment was duly adopted by the Board of Directors of the Corporation on November 4, 2002. Shareholder action is not required in connection with this amendment.

These Amended and Restated Articles of Incorporation are executed by the Corporation by its duly authorized officer.

Dated: December 11, 2002.

ITRON, INC.

By: MariLyn R. Blair  
MariLyn R. Blair  
Secretary

*Exhibit A*  
**AMENDED AND RESTATED  
ARTICLES OF INCORPORATION**

**OF**

**ITRON, INC.**

Pursuant to RCW 23B.10.070, the following constitutes Amended and Restated Articles of Incorporation of the undersigned, a Washington corporation.

**ARTICLE 1. NAME**

The name of this corporation is Itron, Inc.

**ARTICLE 2. SHARES**

**2.1 Authorized Capital**

The total number of shares which the corporation is authorized to issue is 85,000,000, consisting of 75,000,000 shares of Common Stock without par value and 10,000,000 shares of Preferred Stock without par value. The Common Stock is subject to the rights and preferences of the Preferred Stock as hereinafter set forth.

**2.2 Issuance of Preferred Stock in Series**

The Preferred Stock may be issued from time to time in one or more series in any manner permitted by law and the provisions of these Articles of Incorporation of the corporation, as determined from time to time by the Board of Directors and stated in the resolution or resolutions providing for the issuance thereof, prior to the issuance of any shares thereof. The Board of Directors shall have the authority to fix and determine and to amend, subject to the provisions hereof, the designation, preferences, limitations and relative rights of the shares of any series that is wholly unissued or to be established. Unless otherwise specifically provided in the resolution establishing any series, the Board of Directors shall further have the authority, after the issuance of shares of a series whose number it has designated, to amend the resolution establishing such series to decrease the number of shares of that series, but not below the number of shares of such series then outstanding.

**2.3 Dividends**

The holders of shares of the Preferred Stock shall be entitled to receive dividends, out of the funds of the corporation legally available therefor, at the rate and at the time or times, whether cumulative or noncumulative, as may be provided by the Board of Directors in designating a particular series of Preferred Stock. If such dividends on the Preferred Stock shall be cumulative, then if dividends shall not have been paid, the deficiency shall be fully paid or the dividends declared and set apart for payment at such rate, but without interest on

cumulative dividends, before any dividends on the Common Stock shall be paid or declared and set apart for payment. The holders of the Preferred Stock shall not be entitled to receive any dividends thereon other than the dividends referred to in this section.

#### **2.4 Redemption**

The Preferred Stock may be redeemable at such price, in such amount, and at such time or times as may be provided by the Board of Directors in designating a particular series of Preferred Stock. In any event, such Preferred Stock may be repurchased by the corporation to the extent legally permissible.

#### **2.5 Liquidation**

In the event of any liquidation, dissolution, or winding up of the affairs of the corporation, whether voluntary or involuntary, then, before any distribution shall be made to the holders of the Common Stock, the holders of the Preferred Stock at the time outstanding shall be entitled to be paid the preferential amount or amounts per share as may be provided by the Board of Directors in designating a particular series of Preferred Stock and dividends accrued thereon to the date of such payment. The holders of the Preferred Stock shall not be entitled to receive any distributive amounts upon the liquidation, dissolution, or winding up of the affairs of the corporation other than the distributive amounts referred to in this section, unless otherwise provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.6 Conversion**

Shares of Preferred Stock may be convertible into Common Stock of the corporation upon such terms and conditions, at such rate and subject to such adjustments as may be provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.7 Voting Rights**

Holders of Preferred Stock shall have such voting rights as may be provided by the Board of Directors in designating a particular series of Preferred Stock.

#### **2.8 Designation of Rights and Preferences of Series R Participating Cumulative Preferred Stock**

The following series of Preferred Stock is hereby designated, which series shall have the rights, preferences and privileges and limitations set forth below:

##### **2.8.1 Designation of Series R Participating Cumulative Preferred Stock**

The shares of such series shall be designated the "Series R Participating Cumulative Preferred Stock" (the "Series R Preferred Stock"), without par value. The number of shares

initially constituting the Series R Preferred Stock shall be 1,000,000; *provided, however*, if more than a total of 1,000,000 shares of Series R Preferred Stock shall be issuable upon the exercise of Rights (the "Rights") issued pursuant to the Rights Agreement dated as of December 11, 2002 between the corporation and Mellon Investor Services LLC, as Rights Agent (the "Rights Agreement"), the corporation's Board of Directors, pursuant to Section 23B.06.020 of the Revised Code of Washington, shall direct by resolution or resolutions that Articles of Amendment be properly executed and filed with the Washington Secretary of State providing for the total number of shares of Series R Preferred Stock authorized for issuance to be increased (to the extent that the Amended and Restated Articles of Incorporation then permits) to the largest number of whole shares (rounded up to the nearest whole number) issuable upon exercise of such Rights. In addition, such number of shares may be decreased by resolution of the Board of Directors; *provided, however*, that no decrease shall reduce the number of shares of Series R Preferred Stock to a number less than the number of shares then outstanding plus the number of shares reserved for issuance upon the exercise of outstanding options, rights or warrants or upon the conversion of any outstanding securities issued by the corporation convertible into Series R Preferred Stock.

### **2.8.2 Dividends and Distributions**

(a) Subject to the prior and superior rights of the holders of shares of any other series of Preferred Stock or other class of capital stock of the corporation ranking prior and superior to the shares of Series R Preferred Stock with respect to dividends, the holders of shares of Series R Preferred Stock shall be entitled to receive, when, as, and if declared by the Board of Directors, out of the assets of the corporation legally available therefor, quarterly dividends payable in cash on the last day of each fiscal quarter in each year, or such other dates as the corporation's Board of Directors shall approve (each such date being referred to in this Designation as a "Quarterly Dividend Payment Date"), commencing on the first Quarterly Dividend Payment Date after the first issuance of a share or a fraction of a share of Series R Preferred Stock, in an amount per share (rounded to the nearest cent) equal to the greater of (i) \$0.01 and (ii) the Formula Number (as hereinafter defined) then in effect times the cash dividends then to be paid on each share of Common Stock. In addition, if the corporation shall pay any dividend or make any distribution on the Common Stock payable in assets, securities or other forms of noncash consideration (other than dividends or distributions solely in shares of Common Stock), then, in each such case, the corporation shall simultaneously pay or make on each outstanding whole share of Series R Preferred Stock a dividend or distribution in like kind equal to the Formula Number then in effect times such dividend or distribution on each share of Common Stock. As used in this Designation and in the Rights Agreement, the "Formula Number" shall be 100; *provided, however*, that if at any time after December 11, 2002 the corporation shall (i) declare or pay any dividend on the Common Stock payable in shares of Common Stock or make any distribution on the Common Stock in shares of Common Stock, (ii) subdivide (by a stock split or otherwise) the outstanding shares of Common Stock into a larger number of shares of Common Stock, or (iii) combine (by a reverse stock split or otherwise) the outstanding shares of Common Stock into a smaller number of shares of Common Stock, then in each such event the Formula Number shall be adjusted to a number determined by multiplying the Formula Number in

effect immediately prior to such event by a fraction, the numerator of which is the number of shares of Common Stock that are outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that are outstanding immediately prior to such event (and rounding the result to the nearest whole number); and *provided further*, that if at any time after December 11, 2002 the corporation shall issue any shares of its capital stock in a merger, reclassification or change of the outstanding shares of Common Stock, then in each such event the Formula Number shall be appropriately adjusted to reflect such merger, reclassification or change so that each share of Preferred Stock continues to be the economic equivalent of a Formula Number of shares of Common Stock prior to such merger, reclassification or change..

(b) The Corporation shall declare a dividend or distribution on the Series R Preferred Stock as provided in Section 2.8.2(a) immediately prior to or at the same time it declares a dividend or distribution on the Common Stock (other than a dividend or distribution solely in shares of Common Stock); *provided, however*, that in the event no dividend or distribution (other than a dividend or distribution in shares of Common Stock) shall have been declared on the Common Stock during the period between any Quarterly Dividend Payment Date and the next subsequent Quarterly Dividend Payment Date, a dividend of \$0.01 per share on the Series R Preferred Stock shall nevertheless be payable on such subsequent Quarterly Dividend Payment Date. The Corporation's Board of Directors may fix a record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a dividend or distribution declared thereon, which record date shall be the same as the record date for any corresponding dividend or distribution on the Common Stock and which shall not be more than 60 days prior to the date fixed for payment thereof.

(c) Dividends shall begin to accrue and be cumulative on outstanding shares of Series R Preferred Stock from and after the Quarterly Dividend Payment Date next preceding the date of original issue of such shares of Series R Preferred Stock; *provided, however*, that dividends on such shares that are originally issued after the record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a quarterly dividend on or prior to the next succeeding Quarterly Dividend Payment Date shall begin to accrue and be cumulative from and after such Quarterly Dividend Payment Date. Notwithstanding the foregoing, dividends on shares of Series R Preferred Stock that are originally issued prior to the record date for the determination of holders of shares of Series R Preferred Stock entitled to receive a quarterly dividend on or prior to the first Quarterly Dividend Payment Date shall be calculated as if cumulative from and after the last day of the fiscal quarter (or such other Quarterly Dividend Payment Date as the corporation's Board of Directors shall approve) next preceding the date of original issuance of such shares. Accrued but unpaid dividends shall not bear interest. Dividends paid on the shares of Series R Preferred Stock in an amount less than the total amount of such dividends at the time accrued and payable on such shares shall be allocated pro rata on a share-by-share basis among all such shares at the time outstanding.

(d) So long as any shares of Series R Preferred Stock are outstanding, no dividends or other distributions shall be declared, paid or distributed, or set aside for payment

or distribution, on the Common Stock unless, in each case, the dividend required by this Section 2.8.2 to be declared on the Series R Preferred Stock shall have been declared.

(e) The holders of shares of Series R Preferred Stock shall not be entitled to receive any dividends or other distributions except as provided in this Designation.

### **2.8.3 Voting Rights**

The holders of shares of Series R Preferred Stock shall have the following voting rights:

(a) Each holder of Series R Preferred Stock shall be entitled to a number of votes equal to the Formula Number then in effect for each share of Series R Preferred Stock held of record on each matter on which holders of the Common Stock or shareholders generally are entitled to vote, multiplied by the maximum number of votes per share that any holders of the Common Stock or shareholders generally then have with respect to such matter (assuming any holding period or other requirement to vote a greater number of shares is satisfied).

(b) Except as otherwise provided in this Designation or by applicable law, the holders of shares of Series R Preferred Stock and the holders of shares of Common Stock and any other capital stock of the corporation having general voting rights shall vote together as one class for the election of directors of the corporation and on all other matters submitted to a vote of shareholders of the corporation.

(c) Except as provided in this Designation or by applicable law, holders of Series R Preferred Stock shall have no special voting rights and their consent shall not be required (except to the extent they are entitled to vote with holders of Common Stock as set forth in this Designation) for authorizing or taking any corporate action.

### **2.8.4 Certain Restrictions**

(a) Whenever quarterly dividends or other dividends or distributions payable on the Series R Preferred Stock as provided in Section 2.8.2 are in arrears, thereafter and until all accrued and unpaid dividends and distributions, whether or not declared, on shares of Series R Preferred Stock outstanding shall have been paid in full, the corporation shall not:

(i) declare or pay dividends on, make any other distributions on, or redeem or purchase or otherwise acquire for consideration any shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series R Preferred Stock;

(ii) declare or pay dividends on or make any other distributions on any shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock, except dividends paid

ratably on the Series R Preferred Stock and all such parity stock on which dividends are payable or in arrears in proportion to the total amounts to which the holders of all such shares are then entitled;

(iii) redeem or purchase or otherwise acquire for consideration shares of any stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock; *provided, however*, that the corporation may at any time redeem, purchase or otherwise acquire shares of any such junior stock in exchange for shares of any stock of the corporation ranking junior (either as to dividends or upon dissolution, liquidation or winding up) to the Series R Preferred Stock; or

(iv) redeem or purchase or otherwise acquire for consideration any shares of Series R Preferred Stock, or any shares of stock ranking on a parity with the Series R Preferred Stock, except in accordance with a purchase offer made in writing or by publication (as determined by the corporation's Board of Directors) to all holders of such shares upon such terms as the corporation's Board of Directors, after consideration of the respective annual dividend rates and other relative rights and preferences of the respective Preferred Stock classes, shall determine in good faith will result in fair and equitable treatment among the respective series or classes.

(b) The corporation shall not permit any subsidiary of the corporation to purchase or otherwise acquire for consideration any shares of stock of the corporation unless the corporation could, under paragraph (a) of this Section 2.8.4, purchase or otherwise acquire such shares at such time and in such manner.

### **2.8.5 Liquidation Rights**

Upon the liquidation, dissolution or winding up of the corporation, whether voluntary or involuntary, no distribution shall be made to (a) the holders of shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series R Preferred Stock unless, prior thereto, the holders of shares of Series R Preferred Stock shall have received an amount equal to the greater of (i) \$.01 per share and (ii) the accrued and unpaid dividends and distributions thereon, whether or not declared, to the date of such payment, plus an aggregate amount per share equal to the Formula Number then in effect *times the aggregate amount to be distributed per share to holders of Common Stock* or (b) the holders of shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series R Preferred Stock, except distributions made ratably on the Series R Preferred Stock and all other such parity stock in proportion to the total amounts to which the holders of all such shares are entitled upon such liquidation, dissolution or winding up.

## **2.8.6 Consolidation, Merger, etc.**

In case the corporation shall enter into any consolidation, merger, combination or other transaction in which the shares of Common Stock are exchanged for or changed into other stock or securities, cash and/or any other property, then in any such case the then outstanding shares of Series R Preferred Stock shall at the same time be similarly exchanged or changed into an amount per share equal to the Formula Number then in effect times the aggregate amount of stock, securities, cash and/or any other property (payable in kind), as the case may be, into which or for which each share of Common Stock is exchanged or changed. In the event both this Section 2.8.6 and Section 2.8.2 appear to apply to a transaction, this Section 2.8.6 will control.

## **2.8.7 No Redemption; No Sinking Fund**

(a) The shares of Series R Preferred Stock shall not be subject to redemption by the corporation or at the option of any holder of Series R Preferred Stock; *provided, however*, that the corporation may purchase or otherwise acquire outstanding shares of Series R Preferred Stock in the open market or by offer to any holder or holders of shares of Series R Preferred Stock. .

(b) The shares of Series R Preferred Stock shall not be subject to or entitled to the operation of a retirement or sinking fund.

## **2.8.8 Ranking**

The Series R Preferred Stock shall rank junior to all other series of Preferred Stock of the corporation, unless the corporation's Board of Directors shall specifically determine otherwise in fixing the powers, preferences and relative, participating, optional and other special rights of the shares of such Preferred Stock and the qualifications, limitations and restrictions thereof.

## **2.8.9 Fractional Shares**

The Series R Preferred Stock shall be issuable upon exercise of the Rights issued pursuant to the Rights Agreement in whole shares or in any fractional share that is one one-hundredth (1/100th) of a share or any integral multiple of such fraction, and shall entitle the holder, in proportion to such holder's fractional shares, to receive dividends, exercise voting rights, participate in distributions and have the benefit of all other rights of holders of Series R Preferred Stock. In lieu of fractional shares, the corporation, prior to the first issuance of a share or a fractional share of Series R Preferred Stock, may elect to (a) make a cash payment as provided in the Rights Agreement for a fractional share other than one one-hundredth (1/100th) of a share or any integral multiple thereof or (b) issue depository receipts evidencing such authorized fractional share of Series R Preferred Stock pursuant to an appropriate agreement between the corporation and a depository selected by the corporation; *provided, however*, that such agreement shall provide that the holders of such depository

receipts shall have all the rights, privileges and preferences to which they are entitled as holders of the Series R Preferred Stock.

#### **2.8.10 Reacquired Shares**

Any shares of Series R Preferred Stock purchased or otherwise acquired by the corporation in any manner whatsoever shall be retired and canceled promptly after the acquisition thereof. All such shares shall upon their cancellation become authorized but unissued shares of Preferred Stock, without designation as to series until such shares are once more designated as part of a particular series by the corporation's Board of Directors pursuant to the provisions of Article 2 of the Amended and Restated Articles of Incorporation.

#### **2.8.11 Amendment**

None of the powers, preferences and relative, participating, optional and other special rights of the Series R Preferred Stock as provided herein shall be amended in any manner that *would alter or change the powers, preferences, rights or privileges of the holders of Series R Preferred Stock* so as to affect them adversely without the affirmative vote of the holders of at least two-thirds of the outstanding shares of Series R Preferred Stock, voting as a separate class.

### **ARTICLE 3. REGISTERED OFFICE AND AGENT**

The name of the registered agent of this corporation and the address of its registered office are as follows:

Lawco of Washington, Inc.  
1201 Third Avenue, 40th Floor  
Seattle, Washington 98101-3099

### **ARTICLE 4. PREEMPTIVE RIGHTS**

No preemptive rights shall exist with respect to shares of stock or securities convertible into shares of stock of this corporation.

### **ARTICLE 5. CUMULATIVE VOTING**

The right to cumulate votes in the election of Directors shall not exist with respect to shares of stock of this corporation.

### **ARTICLE 6. DIRECTORS**

The number of Directors of this corporation shall be determined in the manner provided by the Bylaws and may be increased or decreased from time to time in the manner provided therein. The Directors of this corporation may be removed only for cause in the manner provided by the Bylaws.

At the 1992 annual election of Directors, the Board of Directors shall be divided into three classes (said classes to be as equal in number as may be possible) with the following classes being elected for the terms set forth below:

<u>Class</u>	<u>Term</u>
Class 1	1 year
Class 2	2 years
Class 3	3 years

Subsequent to the 1992 annual election of Directors, a Director's term shall be three years, and each Director shall serve for the term for which he or she was elected, or until his or her successor shall have been elected and qualified, or until his or her death, resignation or removal from office; provided, however, that despite the expiration of a Director's term, a Director shall continue to serve until his or her successor is elected or until there is a decrease in the authorized number of Directors. Directors need not be shareholders of the corporation or residents of the State of Washington and need not meet any other qualifications.

#### **ARTICLE 7. BYLAWS**

The Board of Directors shall have the power to adopt, amend or repeal the Bylaws of this corporation, subject to the power of the shareholders to amend or repeal such Bylaws. The shareholders shall also have the power to amend or repeal the Bylaws of this corporation and to adopt new Bylaws.


#### **ARTICLE 8. AMENDMENTS TO ARTICLES OF INCORPORATION**

This corporation reserves the right to amend or repeal any of the provisions contained in these Amended and Restated Articles of Incorporation in any manner now or hereafter permitted by law, and the rights of the shareholders of this corporation are granted subject to this reservation.

#### **ARTICLE 9. LIMITATION OF DIRECTOR LIABILITY**

To the full extent that the Washington Business Corporation Act, as it exists on the date hereof or may hereafter be amended, permits the limitation or elimination of the liability of Directors, a Director of this corporation shall not be liable to this corporation or its shareholders for monetary damages for conduct as a Director. Any amendments to or repeal of this Article 9 shall not adversely affect any right or protection of a Director of this corporation for or with respect to any acts or omissions of such Director occurring prior to such amendment or repeal.

Dated: December 11, 2002

  
\_\_\_\_\_  
MariLyn R. Blair, Secretary

# ITRON, INC. – Officers and Directors

April 1, 2013

To contact anyone listed below, please use Itron's main number: (509) 924-9900

<b>Board of Directors</b>	<b>Address</b>
Lynda L. Ziegler Director	2111 N. Molter Road Liberty Lake, WA 99019
Philip Mezey Director	2111 N. Molter Road Liberty Lake, WA 99019
Kirby A. Dyess Director	2111 N. Molter Road Liberty Lake, WA 99019
Jon E. Eliassen Director	2111 N. Molter Road Liberty Lake, WA 99019
Charles H. Gaylord, Jr. Director	2111 N. Molter Road Liberty Lake, WA 99019
Thomas S. Glanville Director	2111 N. Molter Road Liberty Lake, WA 99019
Sharon L. Nelson Director	2111 N. Molter Road Liberty Lake, WA 99019
Gary E. Pruitt Director	2111 N. Molter Road Liberty Lake, WA 99019
Graham M. Wilson Director	2111 N. Molter Road Liberty Lake, WA 99019
<b>Officers</b>	<b>Address</b>
Jon E. Eliassen Chairman of the Board	2111 N. Molter Road Liberty Lake, WA 99019
John W. Holleran Executive Vice President and Chief Operating Officer	2111 N. Molter Road Liberty Lake, WA 99019
Steven M. Helmbrecht Executive Vice President and CFO	2111 N. Molter Road Liberty Lake, WA 99019
Philip C. Mezey President & Chief Executive Officer	2111 N. Molter Road Liberty Lake, WA 99019
Jared P. Serff Vice President, Competitive Resources.	2111 N. Molter Road Liberty Lake, WA 99019
Russell E. Vanos Sr. Vice President – Strategy and Business Development	2111 N. Molter Road Liberty Lake, WA 99019
Shannon M. Votava, Vice President, General Counsel and Corporate Secretary	2111 N. Molter Road Liberty Lake, WA 99019
MariLyn R. Hill Assistant Corporate Secretary	2111 N. Molter Road Liberty Lake, WA 99019
Byron Jackson Vice President and Treasurer	2111 N. Molter Road Liberty Lake, WA 99019
John Shaub Vice President, Tax	2111 N. Molter Road Liberty Lake, WA 99019
Philippe Le Bris Vice President and Corporate Controller	2111 N. Molter Road Liberty Lake, WA 99019

RECEIVED

JUL - 8 2013

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

7. **APPLICANT'S PRESENT OPERATIONS:** (select and complete the appropriate statement)

X The Applicant is presently doing business in Pennsylvania as an energy efficiency consultant; a hardware and software vendor; and a hardware and software support services provider.

Describe nature of business.

Itron is a vendor of electric, gas, and water metering hardware and forecasting software for a number of firms/entities in Pennsylvania. Itron also provides maintenance and data collection services as part of its contracts. Itron's Consulting and Analysis group is providing consulting services in Pennsylvania. Itron is not directly or indirectly owned, partnered or in any way affiliated with any utility, IOU, or EDC.

**OR**

The Applicant is not presently doing business in Pennsylvania.

8. **APPLICANT'S PROPOSED OPERATIONS**

Describe the type(s) of services that the Applicant is able to provide to an EDC, the EDCs the Applicant is able to serve, and the types of energy efficiency and conservation measures on which the Applicant can provide information and technical assistance to an EDC.

Itron is able to serve all the EDCs. (For details about the particular types of services that Itron is able to provide, please refer to the attached Itron Consulting and Analysis brochure.)

9. **TAXATION:** Complete the TAX CERTIFICATION STATEMENT attached as Appendix A to this application. The completed TAX CERTIFICATION STATEMENT is attached.

10. **COMPLIANCE:** State specifically whether the Applicant, an affiliate, a predecessor of either, or a person identified in this Application is currently under investigation for or has been convicted of a crime involving fraud, theft, larceny, deceit, violation of consumer protection law, violation of deceptive trade law or similar activity. Identify all proceedings, by name, subject and citation, dealing with business operations, in the last three (3) years, whether before an administrative body or in a judicial forum, in which the Applicant, an affiliate, a predecessor of either, or a person identified herein has been a defendant or a respondent. Provide a statement as to the resolution or present status of any such proceedings.

N/A

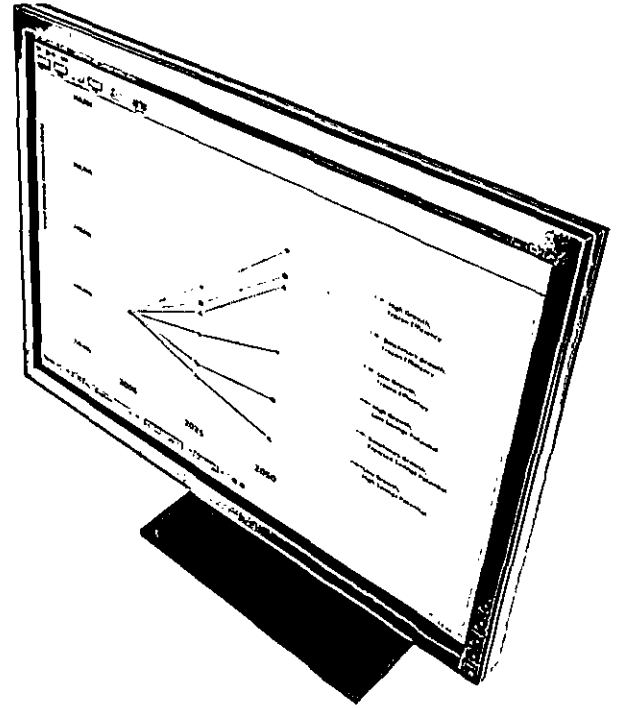
11. **DELINQUENCY:** State specifically whether the Applicant, an affiliate, or a predecessor of either is currently delinquent with any taxing authority in Pennsylvania. To the best of our knowledge, Itron, Inc., its affiliates, or a predecessor of either are not currently delinquent with any taxing authority in Pennsylvania.

12. **BANKRUPTCY:** Identify all bankruptcy or liquidation proceedings for prior three years. Provide a statement as to the resolution or present status of any such proceedings.

N/A

13. **CUSTOMER COMPLAINTS:** Identify all customer complaints filed with a regulatory or prosecutory agency for prior three years. Provide a statement as to the resolution or present status of any complaints.

To the best of our knowledge, we are not aware of any customer complaints that have been filed with a regulatory or prosecutory agency in the last three years.



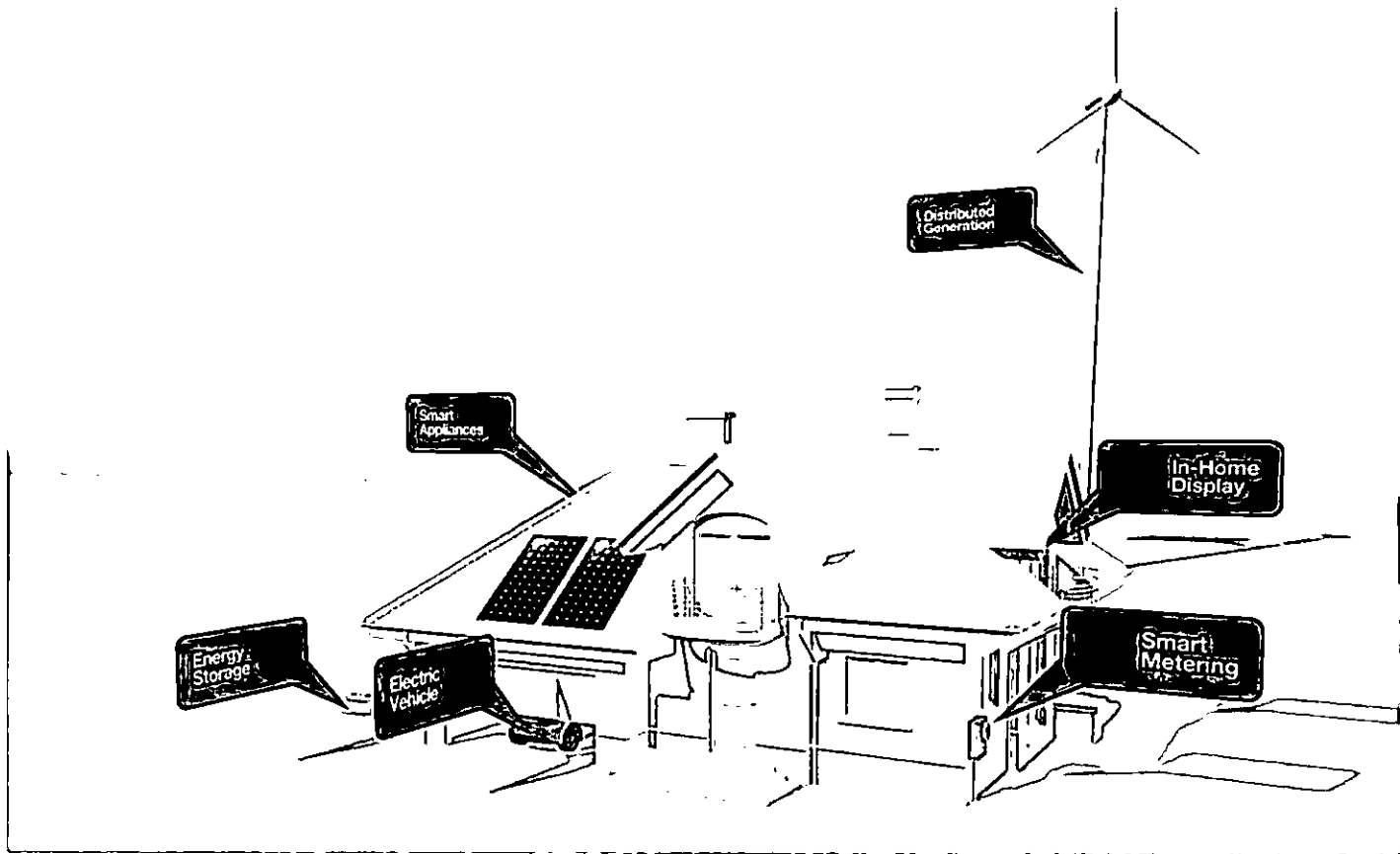
# Consulting and Analysis

In today's energy markets, providers, regulators and policymakers need partners who can deliver services and solutions that optimize resource system benefits and costs. This means understanding technologies, economics and customer behavior; assessing opportunities and barriers; designing, implementing, and evaluating programs, portfolios, products and services; and continuously improving them to meet evolving needs and objectives.

Nearly 8,000 utilities and numerous government agencies worldwide rely on Itron technology and services to help optimize their energy, water and gas services. An evolving economy and uncertainty in environmental and energy policies are leading many utilities and organizations to find solutions that cross traditional boundaries. As leading experts in energy efficiency, demand response, distributed generation and renewables, Itron offers an integrated Demand Side Management (IDSM) perspective and set of tools that link together resources in real world applications. An integrated approach allows clients to select the mix of resources and measures best suited to their needs and budget. As a leading Smart Grid solutions provider, Itron is uniquely

qualified to provide an integrated platform of services and products that present clients with flexible, powerful and cost-effective solutions for today and tomorrow.

Itron's Consulting and Analysis (C&A) group works to significantly enhance our clients' ability to design, implement, evaluate and continually improve DSM and smart grid programs, portfolios, and policies. Clients include domestic and international utilities, government energy offices, private firms, and regulatory bodies seeking to understand energy program, policy and technology effectiveness. C&A staff of over 70 professionals has expertise in economics, engineering, energy and the environment, business management, public policy and related fields.



**Smart Grid Integration**

**STRATEGIC CONSULTING AND SMART GRID SERVICES**

Using the knowledge gained from decades of experience and deep staff expertise in all aspects of demand-side and generation resource management, the Itron Consulting & Analysis (C&A) group's elite team of industry experts provide a broad range of strategic consulting services. Itron's C&A group provides expertise to support generation and DSM resource integration, goal setting, program and portfolio designs, strategic plans, best practice studies and expert testimony support. Itron experts have assisted numerous utilities, program administrators and government agencies in designing and planning energy-efficiency, demand response and distributed generation programs throughout North America.

In collaboration with Itron's industry-leading metering and software solutions, Itron's consulting group provides consulting services to help clients understand and unlock the emerging potential of the Smart

Grid. Itron knowledge, technology and interoperability pave the way for ongoing integration of the smart grid — based on right time, right place solutions — to increasingly capture the enormous value embedded in new technology, software and services as they further advance over time. These products and solutions are further leveraged by our consulting arm and partner companies. The Itron platform of technology, software, and solutions provides enhanced capabilities to chart a future vision that demonstrates the smart grid's value and enable new business initiatives.

Products and services include:

- » Integrated DSM Analyses
- » SmartGrid (SG) Consulting Services
- » DSM Potential/Goals Studies
- » GHG Reduction Strategies
- » Strategic DSM/SG Plans

**ENERGY EFFICIENCY, DEMAND RESPONSE, RENEWABLES AND DISTRIBUTED GENERATION CONSULTING SERVICES**

**Energy Efficiency Services**

Itron's Consulting group provides a variety of planning and evaluation-related services aimed at enhancing the effectiveness of energy efficiency programs and portfolios. Itron's C&A group is known for its breadth of capabilities, ranging from advanced econometric techniques and analyses to in-depth engineering and monitoring studies in complex commercial and industrial facilities. Itron professionals integrate across disciplines to produce the highest quality evaluation, measurement and verification (EM&V) research, as well as industry-leading best practices, potential and cost-effectiveness studies.

Products and services include:

- » Impact, Process, Market Evaluations
- » Cost Effectiveness Analysis
- » Best Practices Studies  
([www.eebestpractices.com](http://www.eebestpractices.com))
- » Potential and Goals Studies
- » Policy and Portfolio Analyses

## BASELINE AND MARKET RESEARCH

### Demand Response Services

Demand response programs help utilities increase grid asset utilization, minimize the cost of resources dispatched and ensure the reliability and cost effectiveness of energy services. Itron's experience with the planning, design, implementation and evaluation of demand response ensures high value development and assessment of its clients' strategies, programs and portfolios. Itron's demand response services also include understanding and assessment of programs focused on innovative uses of information and SmartGrid data to motivate consumer behavior.

Products and services include:

- » Impact, Process, and Market Evaluations
- » Pilot Project Design and Implementation
- » Program Feature and Pricing Analysis
- » Design and Evaluation of Energy Behavior Programs

### Renewables & Distributed Generation Services

For over two decades, Itron's Consulting group has been providing clients with experience and expertise in the areas of

distributed generation, combined heat and power and renewable resources. Built on a strong platform of technology expertise and in-field metering, we offer services in the areas of program design and evaluation, economic and environmental analysis, resource and technology analysis, as well as a wide range of performance measurement, verification and evaluation. Clients include electric utilities, state energy offices, and enterprise businesses interested in distributed generation and renewable energy resources.

Products and services include:

- » Management of Advanced DG and Renewable RD&D
- » Integrating and Optimizing DG Resources into the Grid
- » Technology Cost Trends and Cost-Effectiveness
- » Economic and Environmental Analysis
- » Performance Monitoring and Evaluation
- » Sub-Metering Design, Installation and Management
- » Program Design and Evaluation

### Baseline and Load Research Studies

Understanding the baseline energy usage and equipment saturations of existing residential, commercial, and industrial sectors and the potential for future energy savings is of significant interest and importance to utilities, government agencies, and other stakeholders. Itron designs and implements a full suite of primary data collection techniques and innovative methods and models to develop new initiatives and assess the effects of past, current, and future programs on equipment saturation, market share, consumer behavior, trade ally practices, and energy use.

Products and services include:

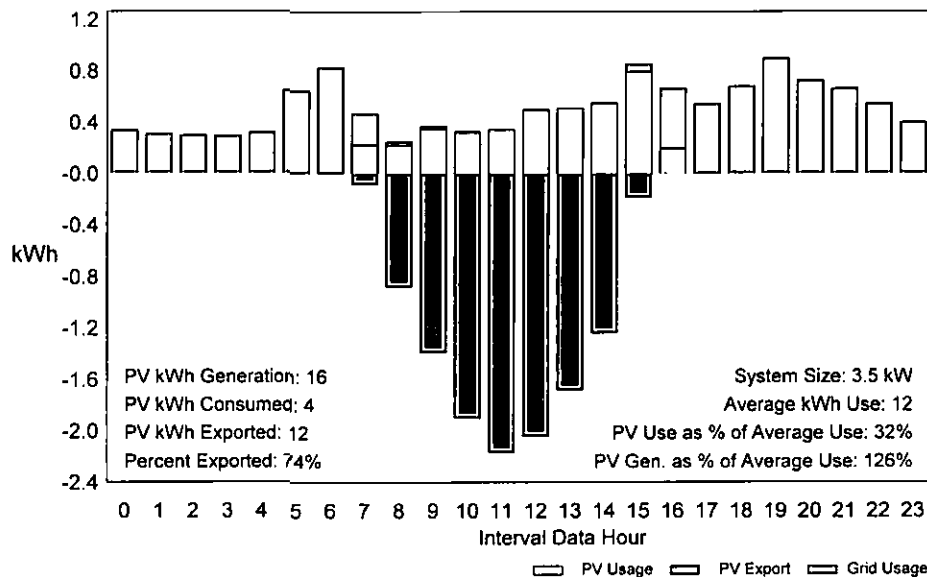
- » Telephone, On-Site, Mail, Electronic Surveys
- » Baseline End-Use Consumption & Saturation Studies
- » End-Use Monitoring and Data Acquisition
- » Market Share Tracking Studies
- » Load Research Design, Implementation, Analysis

### Customer and Market Research

Itron provides an extensive array of customer and market research services that can readily be adapted to the specific needs of each client. With a dedicated CATI center to support phone and internet research and a core team of field professionals who can support on site data collection, metering and remote analysis of data at the substation and feeder level — our data collection skills are unsurpassed. These services can be provided as part of a comprehensive approach to address and support DSM, renewable, and SmartGrid project research and evaluation, or targeted to specific areas of interest where more specialized expertise is desired.

Products and services include:

- » Survey Design
- » In-Depth Interviews
- » Focus Groups
- » Behavioral Research
- » Shelf Surveys
- » Conjoint Analysis
- » Computer Assisted Telephone Interviewing (CATI) Surveys



**PV Export Graph**



At Itron, we're dedicated to delivering end-to-end smart grid and smart distribution solutions to electric, gas and water utilities around the globe. Our company is the world's leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

To realize your smarter energy and water future, start here: [www.itron.com](http://www.itron.com)

**ITRON CONSULTING  
AND ANALYSIS**

USA

**Phone:** 1.858.724.2620

**Fax:** 1.858.724.2690

**email:** [consult@itron.com](mailto:consult@itron.com)

**CORPORATE HEADQUARTERS**

2111 N Molter Road  
Liberty Lake, WA 99019  
USA

**Phone:** 1.800.635.5461

**Fax:** 1.509.891.3355

Application Type:  Initial Application

Renewal- Provide Docket No. A-2009-2109628

APPENDIX A

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COMMONWEALTH OF PENNSYLVANIA PUBLIC UTILITY COMMISSION

TAX CERTIFICATION STATEMENT

JUL - 8 2013

PA PUBLIC UTILITY COMMISSION SECRETARY'S BUREAU

A completed Tax Certification Statement must accompany all applications for new registrations or renewals. Failure to provide the requested information and/or any outstanding state income, corporation, and sales (including failure to file or register) will cause your application to be rejected. If additional space is needed, please use white 8 1/2" x 11" paper. Type or print all information requested.

1. CORPORATE OR APPLICANT NAME: Itron, Inc. 2. BUSINESS PHONE NO. (509-924-9900) CONTACT PERSON(S) FOR TAX ACCOUNTS: Corporate Tax Department, Glenn Shimabuku and Patty Collins

3. TRADE/FICTITIOUS NAME (IF ANY): N/A

4. LICENSED ADDRESS (STREET, RURAL, ROUTE, P.O. BOX NO.) (POST OFFICE) STATE (ZIP): 2111 N Molter Road, Liberty Lake, WA 99019.

5. TYPE OF ENTITY:  SOLE PROPRIETOR  PARTNERSHIP  CORPORATION

8. LIST OWNER(S), GENERAL PARTNERS, OR CORPORATE OFFICER(S): Corporate Officers

NAME (PRINT): Philip Mezey (President & CEO) John Holleran (Executive VP & COO) SOCIAL SECURITY NUMBER (OPTIONAL)

NAME (PRINT): Steven M. Helmbrecht (Executive VP and CFO) Barbara Doyle (VP, Investor Relations) SOCIAL SECURITY NUMBER (OPTIONAL)

NAME (PRINT): Chuck McAtee (VP, Information Technology and CIO) Sharelynn Moore (VP, Corporate Marketing and Public Affairs) SOCIAL SECURITY NUMBER (OPTIONAL)

NAME (PRINT): Simon Pontin (Chief Technology Officer) Jared Serfl (VP, Competitive Resources) SOCIAL SECURITY NUMBER (OPTIONAL)

NAME (PRINT): Russell E. Vanos (Senior VP, Strategy and Business Development) Shannon Votava (VP, General Counsel and Corporate Secretary) SOCIAL SECURITY NUMBER (OPTIONAL)

9. LIST THE FOLLOWING STATE TAX IDENTIFICATION NUMBERS. (ALL ITEMS: A, B, AND C MUST BE COMPLETED).

A. SALES TAX LICENSE (8 DIGITS): 99-43330-6 APPLICATION PENDING N/A

B. EMPLOYER ID (EIN) (9 DIGITS): 91-1011792 APPLICATION PENDING N/A

C. CORPORATE BOX NUMBER (7 DIGITS): 6235527 APPLICATION PENDING N/A

10. Do you have PA employees either resident or non-resident? X YES NO

11. Do you own any assets or have an office in PA? X YES NO

NAME AND PHONE NUMBER OF PERSON(S) RESPONSIBLE FOR FILING TAX RETURNS

Patty Collins, Corporate Tax Department PA SALES AND USE TAX Michelle Chiramonte, Corporate Human Resources EMPLOYER TAXES Glenn Shimabuku, Corporate Tax Department CORPORATE TAXES

PHONE 509-924-9900 / 509-891-3352 PHONE 509-924-9900 / 509-891-3344 PHONE 509-924-9900 / 509-891-3818

You can contact the Pennsylvania Department of Revenue at the following numbers: (717) 787-1064 or TDD# (800) 447-3020 for further information about tax identification numbers.

14. **FINANCIAL RESPONSIBILITY:**

A. Applicant shall provide sufficient information to demonstrate financial responsibility commensurate with the service proposed to be provided. Examples of such information which may be submitted include the following:

- *Organizational structure including parent, affiliated or subsidiary companies. (Please see attached Itron 2012 Annual Report)*
- *Published parent company financial and credit information. (Please see attached Itron 2012 Annual Report)*
- *A description of the types and amounts of insurance carried by Applicant. (Please see attached Certificate of Insurance)*

B. Applicant must provide the following information:

- *Identify Applicant's principal officers (owners, executives, partners and/or directors, as appropriate for organizational structure, including names, titles, business addresses, telephone numbers and their professional resumes. (Please see attached Itron 2013 Proxy Statement and the previously attached list of 2013 Officers and Directors)*

15. **TECHNICAL FITNESS:** To ensure that the present quality and availability of service provided by electric utilities does not deteriorate, the Applicant shall provide sufficient information to demonstrate technical fitness commensurate with the service proposed to be provided. Examples of such information which may be submitted include the following:

- *The identity of the Applicant's management directly responsible for operations, including names, titles, business addresses, telephone numbers and their professional resumes. (Please see attached List of Principal Itron C&A Staff and resumes of those staff.)*
- *Copies of any certification(s) or similar documentation that would demonstrate technical fitness, such as membership in a trade association. (Please see attached Trade Association Memberships and Corporate Affiliation lists)*

16. **FALSIFICATION:** The Applicant understands that the making of false statement(s) herein may be grounds for denying the Application or, if later discovered, for revoking any authority granted pursuant to the Application. This Application is subject to 18 Pa. C.S. §§4903 and 4904, relating to perjury and falsification in official matters.

17. **FEE:** The Applicant has enclosed the appropriate fee:

For an initial application the Applicant has enclosed the required fee of \$125 payable to the Commonwealth of Pennsylvania.

OR

For a renewal application the Applicant has enclosed the required fee of \$25 payable to the Commonwealth of Pennsylvania.

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Applicant: Itron, Inc.

By: Craig Hiteshew

Title: Senior Director of Finance



## Principal Itron Consulting & Analysis Staff

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Name	Title	Business Address	Tel. Number	E-mail
Mike Rufo	Managing Director, Consulting & Analysis	1111 Broadway, Suite 1800 Oakland, CA 94607	510-844-2881	Mike.Rufo@itron.com
Kris Bradley	Director, Consulting & Analysis	1111 Broadway, Suite 1800 Oakland, CA 94607	510-844-2818	Kris.Bradley@itron.com
Rachel Harcharik	Director, Consulting & Analysis	11236 El Camino Real, San Diego, CA 92130	858-724-2620	Rachel.Harcharik@itron.com
Al Lutz	Director, Consulting & Analysis	1111 Broadway, Suite 1800 Oakland, CA 94607	510-844-2831	Al.Lutz@itron.com
Jennifer Fagan	Senior Principal Energy Consultant	2123 Commonwealth Avenue, Madison, WI 53726	608-235-1314	Jennifer.Fagan@itron.com

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

# **Michael W. Rufo**

## **Managing Director**

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### **Education**

- M.A., Technology and Human Affairs, Washington University, 1986
- B.A., Full Honors, Environmental Studies and Planning, Emphasis on Energy Management Design, California State University, Sonoma
- One-year intensive program in International Development, Uppsala University, Sweden, 1982–1983

### **Employment History**

- Managing Director, Consulting & Analysis Group, Itron, Inc., 2006–Present
- Senior Vice President, Quantum Consulting, Inc., 2001–2006
- Vice President, Consulting Services, Western Region, Xenergy, Inc., 1987–2002
- Research Assistant, Washington University, Dept. of Engineering & Policy, 1986
- Energy Analyst, California State University, Sonoma, 1984–1985

### **Selected Expertise**

Mr. Rufo has more than 20 years of experience in virtually all aspects of demand-side consulting. Mr. Rufo is a highly regarded national energy expert and is known for his ability to effectively manage high-profile studies in challenging stakeholder environments. His work has been widely cited and is the basis for energy efficiency goals, program designs, and evaluation approaches throughout North America. His areas of expertise include:

- Energy Efficiency, Demand Response, and Renewable Program Evaluation
- Net to Gross Analysis
- Energy Efficiency, Demand Response, and Distributed Generation Potential Studies
- Market Effects, Baseline, and Assessment Analysis
- Strategic Planning and Energy Policy
- Technology and New Product and Service Assessment Studies

## **Selected Project Experience (Additional Projects Available Upon Request)**

### ***Program Evaluation and Market Assessment***

- **2010-12 CPUC Evaluation – Work Orders 001, 012, 017, 018, 020, 024, 033 and 048.** Mr. Rufo is the overall director-in-charge for Itron's CPUC 2010-2012 energy efficiency evaluation contract. Mr. Rufo played a lead or advisory role in a majority of the major work orders, including those noted above. As part of Work Order 1 (WO001), Mr. Rufo led the design and preparation of the *2010-2012 Energy Efficiency EM&V Work Plan, Version 1*. Also, as part of WO001, Mr. Rufo provides strategic oversight and direction for the entirety of Itron's work and meets regularly with the CPUC Project Manager and Itron PM to assess needs and obtain feedback to ensure continuous improvement and performance. Mr. Rufo played a lead role in the design of the *Program Assessment* element of WO012 (*Overarching Nonres Process Evaluation*). He also played a key role in the sample design and resolution of the research plan for WO033 (*Custom Impact*) and continues to provide strategic review and direction for study implementation and reporting. Mr. Rufo also provides strategic direction and review of WO017 (*Measure Cost Study*), WO018 (*Portfolio Analysis*), WO020 (*Macro Consumption Study*), and WO024 (*Commercial Saturation Survey/Market Share Tracking*), NTG methods (WO048), and other work orders as needed.
- **Evaluation of 2006-2008 Industrial Programs – California Public Utilities Commission (CPUC).** Mr. Rufo directed comprehensive impact evaluations of industrial efficiency programs in the PG&E, SCE, and Sempra Utilities service territories. The impact evaluations involved intensive measurement and verification of gross savings and in-depth analysis of net-to-gross ratios for a large sample of efficiency projects. Mr. Rufo oversaw all aspects of the projects and worked closely with Energy Division and its support consultants to anticipate and address issues and ensure project quality and value. Mr. Rufo also led the development of the projects' findings and recommendations which focused on areas of improvement needed to more effectively capture industrial sector efficiency opportunities.
- **Evaluations of California's Nonresidential Standard Performance Contracting Programs/Baseline Assessment of Large Nonresidential Markets, 1998-2005.** Managed comprehensive evaluation studies of California's SPC programs for 1998, 1999, 2000-2001, 2002-2003, and 2004-2005. These studies included the application of a theory-based evaluation approach, development of market effects indicators, assessment of baseline demand for energy efficient services such as performance contracting, assessment of market effects achieved, development of process evaluation results, estimation ex post impact savings realization rates, and recommendations for improving program performance.

- **2004 and 2005 Large C&I Demand Response Evaluation – California IOUs, CPUC, and CEC.** Led a two-year comprehensive impact, process, and market evaluation of all large customer (>200 kW) demand response programs in California (voluntary CPP, demand bidding, and interruptible programs). Impact analysis included in-depth quantitative comparison and assessment of a variety of representative day baseline load shape methods as well as customer-specific regression methods.
- **Market Assessment and Evaluation Studies for California’s Small/Medium Nonresidential Markets.** Managed sequential, comprehensive studies of small/medium nonresidential market structures and baseline conditions and evaluated program interventions for program years 1999, 2000, and 2001. Conducted studies measuring end user attitudes, actions, and awareness (cross-sectional and longitudinal); managed development of program theory; evaluations of the Small Business Standard Performance Contracting and Express Rebate programs; tracking analyses of program accomplishments; and an assessment of remaining energy efficiency potential.
- **Commercial End-Use Load Shape Development, Portland General Electric.** Managed a comprehensive study that developed end-use load shapes for six key customer segments. The study included calibration of DOE-2 models to sub-metered data for 22 sites and to whole-premise, hourly data for several hundred other sites for which on-site surveys were conducted.
- **Gap Analysis of California’s Baseline Information Sources.** Directed and designed a comprehensive process to collect, database, and assess over 100 potential sources of baseline and market transformation information on California’s energy efficiency markets. Developed reliability and value rating system to score available information and identify gaps. Recommendations for further research were developed to focus baseline and evaluation resources on filling high-priority gaps and improve upon weakness areas.

### ***Planning and Policy***

- **2008 California Energy Efficiency Goals Study – California Public Utilities Commission (CPUC).** Mr. Rufo directed this study that provided technical analysis and support to the CPUC in its development of energy efficiency goals for the California investor-owned utilities for 2009-2020. The approach used scenario analysis to address a variety of policy instruments. Itron staff also participated extensively in CPUC workshops and provided support on CPUC reply comments to stakeholders.
- **2008 Texas Energy Efficiency Potential and Goals Study – Public Utilities Commission of Texas (PUCT).** Mr. Rufo directed this study required by the Texas Legislature. The study estimated the potential for energy efficiency potential in Texas (with participation from seven Texas IOUs), responded directly to questions from the

Legislature, and provided recommendations on energy efficiency goals and policies. The project included briefings of results and recommendations to PUCT Commissioners.

- **2008-2009 Florida Energy Efficiency, Demand Response (DR), and Distributed Generation (DG) Potential Study – Group of Seven Largest Electric Utilities in Florida (contract managed by FPL).** Mr. Rufo directed this study to update EE, DR, and DG potential for major utilities in Florida. The study reviewers include Collaborative members from environmental organizations and the FL PSC. Study includes workshop presentations to PSC Commissioners.
- **2006-2008 California Long-Term Energy-Efficiency Scenario Analysis Study – California Energy Commission (CEC), Public Interest Energy Research (PIER) Climate Change Research Effort.** Mr. Rufo directed an initial, exploratory study that developed a long-term forecast of electricity consumption and energy efficiency potential in California’s residential sector to the year 2050. The focus of this work was on the interaction among key drivers of future electricity use, including population, energy efficiency, and end-use service demand. This study used scenario analysis to address several key dimensions of uncertainty.
- **2007-2009 DEER Update Study – CPUC.** Mr. Rufo co-directed, with JJ Hirsch and Associates, this comprehensive update of the California Database of Energy Efficiency Resources (DEER). DEER is the most extensive source of energy efficiency savings, cost, and net effects information in the industry. This update of DEER has several policy applications, including CA IOU 2009-2011 Energy Efficiency Program Applications and CPUC Energy Division’s estimation of CA IOU 2006-2008 ex ante program accomplishment claims.
- **2003-2008 National Best Practices Study – California IOUs, CPUC, and CEC.** Mr. Rufo designed and directed this first of its kind assessment of energy efficiency program and portfolio best practices. The study compares energy efficiency programs, identifies best practices, and delivers the analysis and recommendations through a popular website ([www.ecebestpractices.com](http://www.ecebestpractices.com)). Fourteen best practice reports and one hundred individual program profiles are provided on the web site. The latest phase provides a Portfolio Best Practices Report and a “What’s New” update of program best practices and issues.
- **DEER (Database of Energy Efficiency Resources) 2001 Update Study (Measure Costs and Savings).** Principal-in-charge and designer of this project that developed detailed databases of energy-efficiency measure costs. The methods employed to develop the data included interviews and surveys of wholesalers and contractors, analysis of utility cost data available in program tracking databases and hard-copy invoices, and development of innovative cost models to explain observed price variations. Also managed the development of per unit residential energy and peak demand impacts.
- **Greenhouse Gas Mitigation Supply Curve Roadmap.** Developed an R&D roadmap for the California Energy Commission’s Public Interest Energy Research Program (PIER)

Environmental Area. Roadmap identified weaknesses in existing GHG supply curve studies and recommended projects to develop GHG mitigation curves for California and advance the state-of-the-art of supply curve research.

### **Utility Restructuring and New Products and Services**

- **Study of Retail Wheeling Pilots, Confidential Clients.** Led *Infrastructure Issues* Tasks, of multi-phase retail wheeling multi-client study. Analyzed revenue cycle service unbundling trends, billing options, metering protocols, and load profiling methods implemented in pilots and emerging restructured markets.
- **California Commercial Customer Baseline/Choice Study. Confidential Clients.** Conceived and led a multi-client study of competitive supplier decision-making consisting of 600 small and medium commercial customers in California. This study measured awareness, willingness-to-switch, and distribution of price discounts required for switching, and quantified the importance of non-price factors on customer's choice of providers.

### **Memberships/Associations**

- Board Member, Center for Energy Efficiency and Renewable Technologies (CEERT), 2002-2007
- Member, Association of Energy Service Professionals

### **Selected Publications, Presentations, and Testimony**

"Evaluation Planning Across Multiple Cycles: Delivering Value through Continuous Improvement and Innovation", with Carmen Best (lead author). Proceedings 2013 International Energy Evaluation Conference, forthcoming.

"Portfolio-Level Evaluation," panelist, 2011 International Energy Evaluation Conference. Boston, MA, August, 2011.

"Evaluation and Performance Incentives: Seeking Paths to (Relatively) Peaceful Coexistence ." Proceedings 2009 International Energy Evaluation Conference. Portland, Oregon, August 2009.

"Energy Efficiency as the First Resource: Opportunities, Challenges, and Beating the Next Bust," with M. Ting, M. Messenger, and M. Wheeler. Proceedings of the American Council for an Energy Efficient Economy (ACEEE) 2008 Summer Study on Energy Efficiency in Buildings. Washington, D.C. August 2008.

“The Practical Realities of Implementing Energy Efficiency,” with L. Nosbaum. National Regulatory Utility Commissioner (NARUC) Consumer Affairs and Electricity Joint Committee Meeting Panel, Portland, OR. July 2008.

Panel Discussion on Attribution of Energy Savings in a Multi-Intervenor Environment. Association of Energy Services Professionals, Annual Conference, January 2008

“Energy Efficiency Potential Studies and Goals,” American Council for an Energy Efficient Economy, Energy Efficiency as a Resource Conference. October 1, 2007.

“Comments on CA Energy Commission Draft Efficiency Goals: Statewide Energy Efficiency Potential Estimates and Targets for California Utilities,” California Energy Commission Integrated Energy Policy Report Workshop on AB2021 Energy Efficiency Goals. Invited Panelist. September 14, 2007.

Testimony on Behalf of PNM’s 2007 Electric Energy Efficiency Application to the Public Regulation Commission of New Mexico. January 2007.

“Issues and Best Practices for Efficiency Programs Targeted at Large Nonresidential End Users,” Minnesota Department of Commerce, Energy Savings Evaluation Forum. 2007.

“Using Scenario Analysis to Forecast Long-term Residential Electric Energy Consumption in California,” with A. North. Proceedings of the American Council for an Energy Efficient Economy (ACEEE) 2006 Summer Study on Energy Efficiency in Buildings. Washington, D.C. August 2006.

“Net Impacts of Efficiency Programs: A Few Thoughts.” Panel Presentation at the 2005 International Energy Evaluation Conference. Chicago, IL. August 2005.

“Understanding Demand Response Opportunities and Barriers: Results from a Comprehensive Market Analysis.” Proceedings 16th National Energy Services Conference. Boca Raton, FL. 2005.

“What a Realization: An Ex Post Impact Evaluation of a Performance-Based Program.” Proceedings 2005 International Energy Evaluation Conference. New York. August 2005.

“National Energy Efficiency Program Best Practices Study: Overview, Sample Results and Initial Lessons Learned.” Proceedings of the ACEEE 2004 Summer Study on Energy Efficiency in Buildings. Washington, D.C. August 2004.

***Additional Papers, Presentations and Testimony Available Upon Request***

# Kris Bradley

## Director

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### Education

- B.S., Environmental Resources Engineering, Humboldt State University, 1988
- Engineer-in-Training Certificate, State of California, 1988

### Employment History

- Director, Itron, Inc., 1993–Present
- Research Engineer, DeLima Associates, 1990–1993
- Energy Consultant, Energy Calc Company, 1988–1990

### Selected Expertise

Mr. Bradley has over two decades of consulting experience, the majority of which has been assisting electric utilities with large scale, technically complex energy efficiency and demand response program evaluations across all energy sectors. Mr. Bradley specializes in mechanical engineering analysis and focuses on the following areas:

- Impact Evaluation of Residential, Commercial, and Industrial Programs
- Engineering Model Design and Analysis
- Data Analysis
- Onsite Metering and Verification
- Database Creation and Management
- Energy Simulation Modeling
- Survey Design

### Selected Project Experience

- **CPUC 2010-2012 Ex Ante Review** (2011 to Present). Mr. Bradley serves as manager for the WO002 Ex Ante Review project, which involves review of IOU custom (non-deemed) projects as they mature in the IOU system from a conceptual stage to an IOU energy savings claim. The Ex Ante Review project has provided a critical opportunity to observe IOU processes and procedures in the custom area and to work with the IOUs to

integrate ED approved policy and procedures. The review addresses program eligibility, CPUC energy efficiency policy, IOU M&V plans, impact calculation estimation, baseline selection and an array of details spanning operating profiles, normalization procedures, model calibration, program influence, free ridership assessment, etc. The study seeks to influence IOU procedures in this area using parallel review that involves ED-imposed requirements of the IOUs for both the selected projects and similar projects on a going forward basis.

- **CPUC 2010-2012 Custom Impact Evaluation** (2011 to Present). Mr. Bradley is a project advisor for all aspects of this custom impact evaluation, with an emphasis on project management, project planning, sampling and issue resolution. This \$9,000,000 project emphasizes gross and net impact evaluation over a period of three years. In this broad advisory role, Mr. Bradley often consults with the project manager, client, other ED consultants, staff and subcontractors, but also completes major assignments for pressing matters. As the manager of Ex Ante Review under WO002, Mr. Bradley serves as the lead in coordinating with the ex-ante review process and ensuring consistent and equitable application of policy/findings/approaches across both projects.
- **Impact and Process Evaluation Studies for Commonwealth Edison's Portfolio of Energy Efficiency Programs** (2009 – Present). In this 5 year project running from 2009 through 2013, Mr. Bradley is serving in a project director role for the evaluation of the Commercial/Industrial Custom Rebate and Industrial Systems programs. Mr. Bradley directs and advises all aspects of this integrated impact and process evaluation of representative project samples, involving M&V, net-to-gross assessment and telephone survey analysis. Mr. Bradley's involvement covers client functions, team meetings, sampling, M&V plan and site report reviews, survey instrument development, survey data analysis, extrapolation of sample results to the program population and ultimate responsibility for each report.
- **Co-Director of 2006-2008 CPUC Industrial Energy Efficiency Program Evaluations** (2007-2009). Mr. Bradley served as co-director for both the 2006-2008 Southern California Industrial and Agricultural Programs and the 2006-2008 PG&E Fabrication, Process and Manufacturing Programs. These efforts involved on-site data collection, monitoring and analysis in order to develop ex post estimates of energy and demand savings. Net savings were estimated using telephone survey self-report net-to-gross methods.
- **Director of the 2002, 2003 and 2004–2005 Statewide Nonresidential Audit Program Evaluation** (2003-2008). Mr. Bradley managed each of three comprehensive impact, market and process evaluations of the Nonresidential Audit Program. These studies, managed by PG&E for the four California IOUs, met a variety of process and impact objectives including:
  - measurement of program impacts in terms of energy and demand savings

- assessment of the success of marketing efforts, process improvements, program design changes and key drivers for participation
  - characterization of the longer-term benefits of the Audit program, including the persistence of audit recommended conservation practices and the timing of audit-related adoptions
  - examination of the role of the Audit during the energy crisis and
  - assessment of the effects of pilot audit follow-up efforts, designed to increase customer measure uptake.
- **2004 and 2005 California Statewide Evaluations of Large Customer Demand Response Programs (2004-2007).** Mr. Bradley was responsible for managing sub-metering data collection and analysis for customers participating in the Demand Bid and Critical Peak Pricing programs offered in California.
  - **California Statewide Evaluation of the 2002, 2003, and 2004-2005 Nonresidential Standard Performance Contract Program (2003-2008).** Mr. Bradley served as technical advisor for the 2004-2005 evaluation and led the 2002 and 2003 impact evaluation and verification activities for this program, consisting of site-specific engineering reviews of SPC applications, on-site data collection/measurement to verify engineering impact calculation parameters and assumptions used in each application, and the development of enhanced site-specific engineering estimates of project savings.
  - **Assessment of Commercial and Industrial Equipment Supply Chains for Wisconsin Focus on Energy (2001-2002).** Mr. Bradley was a key contributor to this study, leading the analysis and reporting for various market segments. The overall goal of this project was to help improve the Wisconsin Focus on Energy business programs by providing a better understanding of supply chain market structure and product flows; market actor roles; key business drivers and market actor practices; the role of energy efficiency; and market barriers. The project scope is limited to the supply-side of selected nonresidential markets and the in-scope end use markets examined are HVAC, compressed air, boilers and pumps. The food and pulp and paper industry segments were also characterized in this study.
  - **Market Assessment of Energy Efficiency in Operations and Maintenance for Commercial Buildings for the Northwest Energy Efficiency Alliance (2004-2005).** Mr. Bradley was responsible for managing all aspects of this study. The study characterized the market in the Pacific Northwest for operations and maintenance practices in medium and large commercial buildings. Major objectives of the study included establishing baseline and enhanced O&M measures, quantifying the energy savings, costs and non-energy benefits associated with enhanced O&M measures, characterizing O&M market practices and services, and quantifying the technical, economic and market potential for enhanced O&M services. The ultimate purpose of the

study was to improve the ability of NEEA to effectively implement the Building Performance Services (BPS) program, a market transformation program focused on increasing the operating performance of existing buildings with complex HVAC and control systems.

- **Utah Powers' Cool Keeper Program Evaluation (2004-2006).** Mr. Bradley managed an impact evaluation of the Utah Power Cool Keeper AC cycling (load control) program.
- **Small Industrial Customer Wants and Needs Study for California's Investor-owned Utilities (2000-2001).** Mr. Bradley was responsible for the management of this study. Itron conducted a market characterization that offered potential program strategies for better serving small industrial customers (the under 500 kW market). This study, managed by PG&E for the four California IOUs, focused on the food processing, printing, industrial machinery, and fabricated metals industries. The study identified their primary end uses and energy-related needs and suggests program enhancements that could address gaps in current program offerings. This study
  - developed an industrial sector description of the IOU's current industrial sector energy efficiency programs, examined current market size and program penetration,
  - qualitatively identified areas of potential and market segments,
  - conducted telephone interviews with small industrial customers in California and professional interviews with downstream vendors, and
  - analyzed customer and vendor survey data in order to characterize key segments, identify energy efficiency potential and barriers, and recommend potential program strategies.
- **AC Distributor Program Baseline Study for Southwestern Public Service Company (1999-2000).** Mr. Bradley was responsible for managing all aspects of this study. This assessment of the current baseline of the small air conditioner retrofit market is based on telephone interviews with AC distributors and dealers in SPS Texas service territory and a nested sample of on-site audits completed with recent AC replacers. The quantitative section of the report analyzes AC efficiency and sizing. The qualitative assessment focuses on program influences, customer awareness and dealer practices that affect AC efficiency in the residential retrofit market.
- **1998-2013 Residential and Commercial DSM Program Evaluations, Florida Power & Light (1998-Present).** Itron has been conducting the largest, longest running, and most comprehensive integrated evaluation of energy efficiency and load control programs in the country. Mr. Bradley has managed this ongoing evaluation since 1998. This ongoing engagement for Florida Power and Light includes many of the highest potential impact energy efficiency options being offered across the country, including: residential central HVAC, room air conditioners, duct repair, ceiling insulation, reflective roofing, window treatment and HRU-assisted water heating; commercial/industrial sector lighting, unitary

HVAC systems, chillers, thermal energy storage, and building envelope (reflective roofing, insulation and window treatment); and residential and C/I sector load control programs. The overall goal of this long-term engagement is to assist FPL in its efforts to continue enhancing program performance, thereby maximizing the value of its energy efficiency products and services to all FPL stakeholders. Through our integrated evaluation approach, we have assisted FPL in developing and meeting long-term energy efficiency and load control goals, while identifying program improvements that reduce program costs by as much as 60 percent, a cost savings worth many times the evaluation expenditures.

- **EnergyStar Home Baseline Project for Southwestern Public Service Company (1999-2000).** Mr. Bradley was responsible for managing this integrated baseline assessment of the residential new construction market. This study was designed to assess the feasibility of an Energy Star Homes program in SPS Texas service territory. It contains data and interim results based on a quantitative analysis of home characteristics and HERS ratings, as well as qualitative findings focused on builder efficiency practices (efficiency offerings, barriers, market trends) drawn from focus groups conducted with 21 builders. The customer assessment, drawn from telephone interviews with 100 new homeowners, evaluates their interest in energy efficiency and barriers they face to energy efficiency.
- **Commercial New Construction Market Characterization and Program Design for Florida Power & Light (1999-2000).** Mr. Bradley was responsible for managing all aspects of this study. Itron assisted FPL in designing a commercial new construction pilot program that encourages builders to exceed Florida Energy Efficiency Code (FEEC) requirements while ensuring utility load reduction goals. The program design is based on a commercial new construction baseline characterization. This characterization compares the current status of building practices in FPL's service territory with best practices available for major end uses. It also identifies and characterizes barriers to more efficient practices as perceived by Florida's new construction community. Finally, it identifies those measures through which builders can most efficiently exceed the FEEC energy budgets and contribute to coincident FPL system demand reductions. The results of this project are specific program format recommendations made to FPL, especially with regard to cost-effective measures that should be promoted in the pilot program.
- **FPL's Natural Gas End-Use Technology Monitoring Project (1995-1997).** Mr. Bradley managed this evaluation of gas hot water systems, gas engine driven chillers, and gas heat pumps based on monitored performance of gas systems in customer homes and businesses, and load research data for comparable electric systems.
- **FPL's Residential New Construction (RNC) Research Project (1993-1995).** Mr. Bradley was responsible for all engineering, market, and process data collection and for

the coordination of engineering calculations with contributing contractors in this multiyear evaluation of single-family detached new home construction.

## **Memberships/Associations**

- Member, Association of Energy Service Professionals
- Past Member of Northern California Solar Energy Association
- Past Member of ASHRAE

## **Selected Reports and Papers**

*California Statewide Cross Program Net Impact Study: Attribution Analysis for a Nonresidential Program Portfolio.* With C. Torok, M. Sutter, R. Friedmann, P. Landry, B. Gettig, and K. Train. Proceedings from the AESP 17<sup>th</sup> National Energy Services Conference, January 2007.

*The Mom and Pop Machine Shop - Designing Programs for Small Industrial Customers.* With P. Willems, R. Friedmann, and M. Myers. Proceedings from the 2003 ACEEE Summer Study on Energy Efficiency in Industry, August 2003.

*Put the Horse Before the Cart—Baseline Characterization in Support of Utility Program Design.* With C. Jump. Proceedings from the 2000 ACEEE Conference, August 2000.

*Measuring New Construction Baseline Building Practices for Commercial Facilities in FPL Service Territory.* Proceedings from the 1999 International Energy Program Evaluation Conference, August 1999.

*Nevermore? Annual On-Site Data Collection for Commercial Lighting Programs.* With M. O'Drain. Proceedings from the 8th National Energy Services Conference, June 1997.

# Rachel A. Harcharik

## Director

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### Education

- M.A., Economics, University of California, San Diego, 1998
- B.A., Mathematics, Emphasis in Statistics. Minor: Economics, University of San Diego, 1997

### Employment History

- Director, Senior Economist, Senior Analyst, Itron, Inc., 2000–Present
- Energy Analyst, Sempra Energy Information Solutions, San Diego, CA, 1998–1999

### Selected Expertise

Ms. Harcharik has 15 years of experience in the energy industry managing large integrated DSM evaluation studies, particularly of non-residential prescriptive and the residential new construction programs. Ms. Harcharik also has been involved in numerous market characterization studies, some of which have spanned over a decade. Ms. Harcharik has extensive experience developing and maintaining databases, including working with program tracking data and billing data. Her areas of expertise include:

- Impact Evaluation of Non-Residential Energy Efficiency Programs
- Data Analysis
- Database Creation and Management
- Data Collection Methodologies
- Sample Design
- Onsite Verification and Metering Database Creation and Management
- Survey Design
- Market Characterization
- Potential Studies

## Selected Project Experience

- **California Investor Owned Utilities 2010-2012 Portfolio Evaluation for the California Public Utilities Commission (2010–Present).** Itron is one of two firms selected by the California Public Utilities Commission (CPUC) to manage and implement the evaluations of the 2010-2012 energy efficiency portfolios of the CA IOUs. Itron is co-managing the overarching contract and approximately 30 sub-contractors. The portfolio evaluation includes an extensive list of over 30 studies encompassing overarching process evaluations, impact evaluations, baseline studies, market effect studies, new construction evaluations, market research, and potential studies. Ms. Harcharik served as one of the senior staff overseeing Itron's prime contract with the CPUC.
  - **Overarching Management.** In addition to the specific projects listed below, Ms. Harcharik also acts as the Project Manager for this Work Order which includes the administrative management of the umbrella of work orders, all financial aspects/systems, and day-to-day coordination of the Work Order teams.
  - **Non-Residential Lighting Evaluation.** Ms. Harcharik is a strategic advisor on this study. Ms. Harcharik worked with the Itron PM in overseeing the development of the scope of work, the phone and on-site surveys, the day-to-day management of the work order team, and the lighting logger analysis.
  - **Data Management and Data Reporting Work Orders.** Ms. Harcharik is a strategic advisor on this study working closely with the Project Manager to design the methodology of the data flow and developing the datasets used for sample design by numerous work orders. Ms. Harcharik has also worked with the PM to oversee most other aspects of this study including: managing data requests, data delivery and data cleaning; providing feedback to the IOUs on enhancements to the data quality and structure of the program tracking database; managing the creation of a comprehensive dataset of the full non-residential frame with consumption history starting in 2006 merged with the energy efficiency and demand response program tracking databases beginning in 2006 through 2012. Ms. Harcharik has also been involved in the development of the evaluation reporting tool to be used to calculate portfolio level results, including cost effectiveness results, using the ex-post results from the CPUC 2010-2012 EM&V Studies.
  - **Commercial Saturation Study and Commercial Market Share Tracking Study.** Ms. Harcharik is a strategic advisor on this study. Ms. Harcharik worked with the Itron PM in overseeing the development of the scope of work, the phone and on-site surveys, the sample design, and weighting. Ms. Harcharik also advised in the development of the data systems including the linkage to the EE and DR program tracking databases.

- **Reporting Work Order.** Ms. Harcharik is currently the Itron manager on this study. Ms. Harcharik has coordinated project summary reports and worked with ED on selected Annual Report chapters.
- **Residential Market Share Tracking Study (RMST).** Ms. Harcharik has managed this study since 2003. The study measures the market penetration of high efficiency lighting in California in three retail channels. This effort adds to existing RMST research conducted between 1999 and 2008, which monitored the market penetration of lighting (CFLs), HVAC, and appliances (dishwashers, clothes washers, refrigerators, and room air conditioners) in California.
- **EM&V of 2006-2008 CA IOUs Small Commercial Programs (2007–2010).** Ms. Harcharik managed the day-to-day activities of this study. This study included the impact evaluation for thirty 2006-2008 energy efficiency programs (administered by the four CA investor-owned utilities (IOUs) and several Third Party contractors). These efforts involved telephone surveys, on-site data collection, pre and post metering, billing analysis, discrete choice analysis, and engineering analyses of a representative sample of customers participating in the program in order to develop (a) gross and net ex post estimates of the energy and demand savings over the lifetime of the measures installed, and (b) impact load shapes. The evaluation included the largest non-residential lighting logger study conducted in California to date. The results of the lighting logger analysis included operating hours by measure group, building type, and activity areas. In addition, a detailed comparison of self-reported operating hours to actuals was completed and self-report adjustment factors were created by building type, activity area, and time period (open, close, open-shoulder, closed-shoulder) in order to minimize large logger studies of the same measure type and building type in future evaluations.
- **EM&V of 2006-2008 CA IOUs Residential New Construction Programs and Baseline Study of Newly Built Homes (2007–2009).** Itron was a subcontractor to KEMA Inc. (formerly RLW Analytics) for the CA New Construction/Codes and Standards Evaluation. Ms. Harcharik co-managed the RNC Evaluation and the RNC Baseline activities with a team member from KEMA. The RNC evaluation included a baseline study of single family homes, which provided insight into the estimation of net savings of the IOU RNC programs in the New Construction evaluation and acted as the foundation for the Codes & Standards evaluation. The baseline activities included on-site surveys of building characteristics, duct testing, blower door testing, and metering. Other activities included collecting compliance documentation (C2Rs), and creating MICROPAS input files used to estimate non-compliance and over-compliance.
- **2006-2008 CA Residential New Construction Market Effects Study (2008–2009).** This study was also under contract to KEMA and led by NMR. Ms. Harcharik managed the Itron portion of the study, which included looking at building characteristics and

compliance margins for single family homes built under the 1995, 1998, 2001, and 2005 Title 24 Residential New Construction Standards.

- **2004/2005 Express Efficiency Program Evaluation (2006–2008).** Ms. Harcharik managed this study, which includes an extensive lighting logger study, a process evaluation, and an impact evaluation component (an engineering analysis and/or a billing analysis determined by measure). More specifically, the project includes verifying savings, which includes verifying applications, conducting telephone surveys and on-site surveys to verify installations. The billing evaluation encompasses an ex-post net savings analysis that includes measure specific engineering analysis (for most measures), a SAE billing analysis (for several measures including, but not limited, to T8s, CFLs, and A/Cs), and a limited dependent variable net-to-gross analysis using 4,000 telephone surveys. The evaluation includes conducting a market opportunities assessment and benchmarking program success by determining if there are gaps in best practices, leveraging off Itron's National Best Practices Study.
- **California Residential Efficiency Market Share Tracking (2000–2009).** Ms. Harcharik became the Project Director in 2004. Prior to directing all aspects of the project, she was the Lead Analyst (2000–2003) for tracking light bulbs and for the measures installed in residential new construction including HVAC equipment, water heaters, windows, and lighting. Developed a database used for collecting and reviewing residential new construction data from on-site surveys and from building department installation forms. Used SAS to analyze the data, created detailed graphs to illustrate the results, co-wrote annual tracking reports.
- **California Statewide Energy Efficiency Potential Study for all New Construction Markets (2005–2006).** Managed the development of 10-year forecasts of new construction program potential, maximum achievable potential, and economic potential by climate zone for 14 building types within the residential, commercial, and industrial customer segments. Developed residential measure bundles and related characteristics and worked with RLW to develop nonresidential bundles.
- **PG&E Residential New Construction Baseline Studies (2000–2004).** Managed all aspects of the project including interviews with builders and Title 24 Consultants, development of average building characteristics of and compliance analysis of single family new homes constructed in 2003 and complying under the 2001 Standards. In addition to the baseline work, this project had several other tasks including 1) support of 2005 Standards which involved comparing the 2001 Standards and the 2005 Standards and reviewing the TDV results and 2) developing incremental costs and savings estimates for homes to comply at 15% and 25% greater than the 2001 Standards for the ENERGY STAR New Homes Program and analyzing various methods for calculating savings.

Assisted in the development of an MS Access system that evaluates on-site survey data using MICROPAS, a residential building compliance tool. Estimated technical potential

of four of the measures included in AB 970 – California’s new low-rise residential building standards as part of the 2002 Baseline Study. Conducted interviews with Title 24 Consultants and residential builders.

- **Statewide Multifamily New Construction Study (2002).** Examined building department compliance documentation for low-rise multifamily buildings and developed and analyzed as-built compliance results using MICROPAS.
- **XCEL Energy Demand-Side Management Potential Study (2001).** Analyzed on-site survey data of commercial and industrial buildings throughout Minnesota. Developed base shares of energy efficient equipment by type and quantified the attitudes and behaviors of decision makers related to energy efficiency and conservation to use in the technology adoption model in ASSET.
- **Central Illinois Lighting Company Gas Load Research Study (2002).** Performed data analysis using SAS, specifically for cleaning, weighting, and aggregating interval load data. Used *MetrixND* and SAS to develop weather normalized load shapes for the system load and for individual rate classes.
- **Central Illinois Lighting Company Electric Load Research Study (2001).** Performed data analysis using SAS, specifically for cleaning, weighting, and aggregating interval load data. Used *MetrixND* and SAS to develop weather normalized load shapes for the system load and for individual rate classes.
- **California Residential Contractor Program: Market Effects Evaluation (2000).** Assisted in development of hypotheses to test market effects, assisted in development of survey guides, conducted in-depth interviews with HVAC contractors, used SAS to compute weighted means of self-reported program impacts, wrote insulation section, and co-wrote HVAC section of the Residential Contractor Program Market Effects Evaluation report.

## **Selected Reports**

### **Energy Efficiency Program Evaluation**

*2006-2008 Small Commercial Contract Group Direct Impact Evaluation Report.* With J. Cavalli, E. Galawish, C. Hungeling (Itron). Prepared for the CPUC. February, 2010.

*2008 1st Verification Report for Contract Group B – Small Commercial Contract Group.* (Appendix to: *Energy Efficiency 2006-2007 Verification Report.* CPUC Energy Division) With J. Cavalli, E. Galawish, C. Hungeling (Itron). Prepared for the CPUC. February, 2009.

*2004/2005 Statewide Express Efficiency and Upstream HVAC Program Impact Evaluation.* With J. Cavalli, A. Khursheed, and J. Shelton (Itron) and K. Gaffney (KEMA). Prepared for the CPUC and the California IOUs. December 2008.

**Potential Studies**

*The California Energy Efficiency Potential Study.* With F. Coito (KEMA), J. Shelton (Itron) and R. Friedmann (PG&E). May 2006

*SCE Potential Study MRAP.* With F. Coito (KEMA), J. Shelton (Itron) and P. Toth (SCE). July 2006.

*PG&E Potential Study Sensitivity Analysis.* With F. Coito (KEMA), J. Shelton (Itron). June 2006.

**New Construction**

*Residential New Construction Baseline Study of Building Characteristics - Homes Built After 2001 Codes.* With A. Fields and B. Ramirez. Prepared for PG&E. August 2004.

*Incremental Cost Study.* With A. Fields and J. Holmes. Prepared for PG&E. September 2003.

*Residential New Construction Study – Year 2.* With A. Fields and B. Ramirez. Prepared for PG&E. September 2002.

**Market Share Tracking**

*California Lamp Report.* With various co-authors. Prepared for Southern California Edison. Multiple editions, 2000-2008.

*California HVAC.* With various co-authors. Prepared for Southern California Edison. Multiple editions, 2003-2005.

*California Appliances.* With various co-authors. Prepared for Southern California Edison. Multiple editions, 2003-2006.

*Massachusetts Lighting Report 2002.* With A. Fields. Prepared for NSTAR Electric. March 16, 2004.

*California Residential Efficiency Market Share Tracking - New Construction.* With A. Fields. Prepared for Southern California Edison. July 2001.

## Selected Papers and Publications

“Is The Customer Always Right? A Cost-Effective Method for Estimating Lighting Usage in Commercial Buildings.” With B. Rector and J. Cavalli. 2011 International Energy Program Evaluation Conference. August 2011.

“Development of Interior Lighting Hours of Use and Coincidence Factor Values for Evaluation of the EmPOWER Maryland Commercial Lighting Programs.” With J. Loper, B. Ramirez, J. Cavalli, and M. Messenger. 2011 International Energy Program Evaluation Conference. August 2011.

“A California NonResidential Lighting Logger Palooza!” With B. Ramirez, T. Mayer, and C. Hungeling. 2010 Association of Energy Services Professionals Conference. February 2010.

“Raising the Bar: The Effect of the California 2005 Energy Efficiency Standards on Residential New Construction Program Design.” With D. Blanke, D. Adams, and K. Wolf. 2006 American Council for an Energy Efficient Economy Summer Study Conference. August 2006.

“What’s a Builder to Do? Changes in California’s Energy Efficiency Programs and Standards: 1995-2005.” With M.K. Gobris and A. Fields. 2004 American Council for an Energy Efficient Economy Summer Study Conference. August 2004.

“How Residential Builders Respond to Changes in Codes and Energy Efficiency Programs.” With M.K. Gobris, A. Fields, and J. Holmes, 2003 Association of Energy Services Professionals Conference. December 2003.

“Impact of Changes in California’s Residential New Construction Building Standards on Builder Practices and Energy Efficiency Programs.” In *Energy Efficiency in Construction*. With M.K. Gobris, A. Fields, and R. Ramirez. 2002 Association of Energy Services Professionals Conference. December 2002.

“California Lamp Report 2001.” With A. Fields and R. Pulliam. In *Residential Lighting Comes of Age*. 2002 American Council for an Energy Efficient Economy Summer Study Conference. August 2002.

“Tracking Market Shares of High Efficiency Measures in California’s Residential Sector.” With F. Sebold, A. Fields, P. Vu, S. Bortstein, R. Ridge, and R. Pulliam. In *Evaluation: Providing Answers to Tough Questions*. 2001 International Energy Program Evaluation Conference. Salt Lake City, UT. August 2001.

“What are the Likely Impacts of Recent Changes in California’s Residential New Construction Standards on Construction/Compliance Practices and Utility RNC Programs?” With A. Fields, R. Ramirez, H. Micelli, and M.K. Gobris. In *Evaluation: Providing Answers to Tough Questions*. 2001 International Energy Program Evaluation Conference. Salt Lake City, UT. August 2001.

# Alfred Lutz, P.E., CEM, LEED AP

## Director

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### Education

- M.S., Energy Management and Policy, University of Pennsylvania, 1995
- B.S., Engineering Science, Pennsylvania State University, 1983

### Employment History

- Director, Itron, Inc., 2006–Present
- President, AJL Resources LLC, 2001–2006
- Director of International Sales, Comverge Technologies, 1999–2001
- Senior Energy Manager, Conectiv Solutions/Atlantic Energy, 1996–1998
- Senior Project Manager, GHR Consulting Services, Inc., 1990–1996
- Staff Engineer, Pennoni Associates Inc., 1988–1989
- Staff Engineer, Energy Engineering, Inc., 1986–1987

### Selected Expertise

Mr. Lutz has expertise in the technical aspects of energy efficiency project evaluation and implementation, particularly in the commercial and industrial sectors. His areas of expertise include:

- Gross Impact Evaluation
- Engineering End Use and Whole Building Analysis
- Commercial and Industrial Energy Efficiency Technologies
- Renewable Energy and Distributed Generation Assessment
- Assessment of Workpapers, Ex Ante Savings Assumptions and Ex Ante Methodologies
- Evaluation Based Program Design and Delivery Enhancements

## Selected Project Experience

**CPUC 2010-2012 CPUC Custom Impact Evaluation** (2011 to Present). Project manager for all aspects of this custom impact evaluation. Gross and net impacts are included in this \$9,000,000 effort over a period of three years. Responsibilities include planning, scheduling, stakeholder management, and the direction/management/training of ten internal personnel and eight subcontracting firms. His tasks include the review and delivery of 400 complex site gross impact evaluations and 300 lower rigor assessments (desk reviews) for program assessments across the four major California IOUs. He is also charged with integrating the net impact activities for these sites and coordinating with the ex-ante review process conducted under WO002. He is Itron's primary point of contact with the CPUC Energy Division regarding all evaluation issues and is charged with meeting aggressive and challenging deadlines for project completion as well as for early feedback to the CPUC Energy Division, the IOUs and other stakeholders.

**CPUC 2006-2008 PG&E Fabrication, Process and Manufacturing Program and Southern California Industrial and Agricultural Program Impact Evaluation.** (2008 - 2010). Mr. Lutz managed the technical aspects of these impact evaluations for the CPUC. His tasks included the management of subcontractors to deliver complex site evaluations for 160 electric and gas energy efficiency projects. For this project, he was responsible for overall project quality management and control, and conducted training seminars on impact evaluation, using a proprietary, Itron-developed document, "*Procedures for Site-Specific Impact Analysis*". He was Itron's primary point of contact with the CPUC Energy Division regarding technical evaluation issues. In this role, he was able to expanding the rigor of evaluations, including data collection in accordance with the post- installation measurement protocols within the IPMVP and the California evaluation protocols and framework. This evaluation also was novel in the approach to uncertainty analysis using Monte Carlo analysis and software simulation tools such as Crystal Ball. In the reporting phases, he crafted recommendations to improve results through program design and delivery enhancements, and through better documentation through both project submittals and tracking databases.

**2009-2013 PECO Smart Energy Incentives Government, Institutional, and Nonprofit Impact Evaluation.** (2010 to present). Project manager for the impact and process evaluation of the Government, Institutional and Nonprofit program for PECO since the inception of that program in 2010. Worked with local subcontractors to cost effectively deliver gross impact results. Analyzed the prescribed deemed values and prescribed savings methodologies for diverse measures, including lighting technologies, VSD retrofits, EMS systems, and other technologies. Detailed recommendation in annual reports promoting modification to savings calculations for several types of measures.

**2004-2005 California Statewide Standard Performance Contracting (SPC) Evaluation.** (2006 – 2008). This comprehensive evaluation included impact, process and market evaluation components. Mr. Lutz led the gross impact and analysis efforts involving 113 site specific impact evaluations throughout the state. Measurement of key variables was performed for technologies that included: lighting and HVAC retrofits; EMS and variable speed drive (VSD) installations; motor replacements; building shell improvements, and other custom measures. Mr. Lutz managed the technical aspects of these evaluations, and coordinated with the CPUC and the master evaluation contractor team to procure direction on key evaluation issues. Under Mr. Lutz's direction, Itron managed a group of subcontractors to deliver high quality site impact evaluations, took responsibility for overall project management and control of the technical aspects, conducted training seminars on impact evaluation, and assessed uncertainty in key variables governing energy saving estimates for all applications.

**2000-2005 Statewide Express Efficiency and Nonresidential Sector Evaluation.** (2006-2009). Mr. Lutz assisted with conducting ex post savings analysis that included engineering methodologies and modification of algorithms for several measures that contributed heavily to program energy savings. These algorithms were adjusted as supported by detailed phone surveys and targeted on-site verification and engineering studies. For this project, Mr. Lutz assisted in developing survey instruments for technical on-site verification, enabling the collection of the most important parameters affecting energy savings. Types of measures included: lighting measures, strip curtains, refrigerated case covers, variable speed drives, programmable thermostats, pipe insulation, tank insulation, and building shell improvements.

**2002-2005 Statewide Single Family Rebate Program Evaluation** (2007). Mr. Lutz assisted in the engineering review of clothes washer energy savings, incorporating the DEER and Express Efficiency workpaper approaches and current energy efficient technologies.

**WE Energies 55 MW DSM Portfolio Evaluation** (2006 – 2008). Mr. Lutz and his team at Itron were responsible for reviewing the incentivized measures and applications and, using local resources in a cost effective approach, collecting the most relevant information in assessing post-installation realized energy savings. The focus was primarily on peak kW demand reduction in the summer months for this program. Types of measures included innovative HVAC retrofits (chiller replacements, air handling unit installations, heat recovery systems, ice storage systems, lake water cooling systems, etc.), wastewater treatment plant modifications (centrifuge replacements and aeration system improvements), and process modifications / variable speed drive installations at a paper mill.

**Energy Consulting and Project Development** (2001-2006). With AJL Resources, Mr. Lutz was responsible for project management, customer satisfaction, marketing, and growth strategies. He consulted on distributed generation (combined heat and power) projects and

solar photovoltaic development projects worth over \$20 million. He developed energy master plans and monitoring plans for 40 buildings of a major university campus. Mr. Lutz also optimized energy reporting for a property manager with over 10,000 units and 200 properties. Under his guidance, AJL Resources initiated energy efficiency/load control projects with annual energy savings of over \$600,000.

**International Metering Sales (1999-2001).** As Director of International Sales for Comverge, Mr. Lutz established international sales and marketing strategies for three separate product lines. He negotiated contracts for the two largest international projects in Comverge's history. He built and maintained relationships with agents and utilities in Latin America, Asia, the Middle East, and Africa, establishing new representatives and value added resellers (VARs). Mr. Lutz performed customer oversight of projects worth over \$2 million. He was responsible for designing and placing materials for branding campaigns to penetrate US and international markets

**Energy Service Company Project Development (1996-1998).** As Senior Energy Manager for a utility ESCO, Mr. Lutz developed and negotiated the terms of performance based energy services contracts worth over \$1.4 million, saving over \$300,000 annually; projects included water efficiency measures and gas purchasing savings. He performed construction management using in-house personnel and subcontractors. He trained a 24 person sales force and increased revenues by over \$1 million in six months. He supervised subcontractors for an energy audit for the Federal Aviation Administration, projecting annual energy savings of \$1.5 million. Mr. Lutz recommended processes and software designed to increase opportunity awareness throughout the utility, with an estimated increase of \$2 million in revenue. He also revised the sales process for technical and sales force, saving over \$50,000 in lawyers' fees and more than \$200,000 in consultants' fees

**Energy Engineering (1986 – 1998).** In project management and engineering roles, Mr. Lutz identified, designed, and managed implementation of energy saving improvements (lighting, motors, variable speed drives, boilers, energy management systems) in over 40 facilities (including universities, offices, hospitals, schools, supermarkets, processing plants, and wastewater treatment facilities). Mr. Lutz also spearheaded computerization of specification methods; this measure resulted in substantial time savings and improved contract documents. In other engagements, Mr. Lutz generated energy conservation reports for 27 commercial facilities (including retail spaces, supermarkets, kitchens, offices, schools, and hospitals).

**Municipal / environmental Engineering (1988 – 1990).** As a staff engineer, Mr. Lutz worked on the design and operation of wastewater treatment plants and water/sewerage pumping stations. Mr. Lutz designed a 4 MGD potable water pumping station and prepared a sewage facilities plan addressing treatment needs. He performed financial/economic analyses, revised

a water supply plan and expanded a computer model of a municipal water distribution system. Mr. Lutz also served as building inspector/zoning officer for town of 20,000; in this capacity.

## **Selected Publications and Presentations**

Measure by Measure: The Real Reason for the Gaps in Claimed and Evaluated Savings, ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA; August 15, 2012.

Would the True Industrial Energy Efficiency Savings Please Stand Up, ACEEE Summer Study on Energy Efficiency in Industry; Niagara Falls, NY; July 29, 2011.

Evaluation of Energy Efficiency Measures for Large C&I Customers, Itron Users' Conference; Phoenix, AZ; September 28, 2009.

Accuracy of Energy Savings Projections – Implications for Energy Efficiency Program Evaluation and Design, Poster Session, IEPEC; Portland, OR; August 12, 2009.

Rebates and Other EE Best Practices for Large C&I Incentive Programs, Technology and Market Assessment Forum, Energy Solutions Center; Pasadena, CA; February 24, 2009.

Solar Applications Update, Presentation to the Association of Energy Engineers; Philadelphia, PA; May 2006.

Effects of Advanced Metering on Utility Needs, Metering Americas; Miami, FL; 2001.

Economic Opportunities in Wastewater Treatment, World Energy Engineering Congress; Atlanta, GA; 2005.

Energy Master Planning at Rowan University – A Collaborative Approach; presentation to the New Jersey Higher Education Partnership for Sustainability, AEE and ASHRAE; Glasboro, NJ; 2005/2006.

“Economic Opportunities in Wastewater Treatment.” Energy and High Performance Facility Sourcebook, Proceedings of the 26th World Energy Engineering Congress. November 2003.

“Economic Opportunities in Wastewater Treatment.” Energy Engineering. January 2005.

“Energy Use in Wastewater Treatment.” Encyclopedia of Energy Engineering. 2007.

“Two Way Communication – A Prepayment Prerequisite.” Metering International. 2000, Issue 1.

“Load Management System for Utility in Saudi Arabia.” Metering International. 2000, Issue 2.

“Two Way Communication – An Economic Advantage.” Utility Management Solutions. 2000.

## **Certifications, Honors and Special Achievements**

- Professional Engineer, licensed in Pennsylvania, 1990
- Professional Engineer, licensed in New Jersey, 1996
- Certified Energy Manager, 1998
- NYSEIA Solar Electric Installation Training, Rowan University, 2002
- Advanced ASHRAE HVAC Design Course, 2003
- LEED Accredited Professional, 2004

## **Memberships / Associations**

- Past President of the Engineering and Technical Societies Council
- Senior Member / Lifetime Member of Association of Energy Engineers (AEE)
- Member of American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

# Jennifer Fagan

## Senior Principal Energy Consultant

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### Education

- Graduate and Ph.D. level courses in Economics, University of Wisconsin, Madison, 1977–1978
- B.A., Economics, University of California, Berkeley, 1976

### Employment History

- Senior Principal Energy Consultant, Itron, Inc., 2005–Present
- Director of Business Programs, Wisconsin Energy Conservation Corporation, 2004–2005
- Senior Manager, Strategic Services, KEMA Inc., 2001–2004
- Corporate Research Consultant, Alliant Energy Resources, 2000–2001
- Senior Economist, Electrotek Concepts, Inc., 1997–2000
- Senior Economist, Resource Management Associates, Inc., 1994–1997
- Manager of Demand-Side Planning, Wisconsin Power and Light Company, 1990–1994
- Economics and Rate Analyst, Southern California Edison, 1984–1989

### Selected Expertise

Ms. Fagan has over thirty years of experience as an energy consultant. She manages process and impact evaluations for leading U.S. utilities and energy efficiency program administrators. Currently, she is leading the assessment of free ridership and spillover for evaluation studies of large customer programs offered in Illinois and Pennsylvania, and recently completed similar work in California and Wisconsin. Her areas of expertise include:

- Impact and Process Evaluation of Residential and Commercial/Industrial Programs
- Net to Gross/Attribution Analysis
- Market Assessment
- Energy Pricing
- Survey Design and Analysis
- Strategic Planning Policy Analysis
- Best Practices Assessment

## Selected Project Experience

- **CPUC 2010-2012 Statewide Custom Impact Evaluation and Nonresidential Overarching Process Evaluation.** Ms. Fagan is leading the NTG (attribution) data collection and analysis efforts for the Statewide Custom Impact evaluation. She is integrally involved in all aspects of the NTG work. She plays a leading role on the Large Nonresidential Net-to-Gross Working Group that developed refined versions of the NTG survey instruments, the algorithm for computing the NTG ratio, and a spreadsheet-based calculator for implementing the NTG algorithm. In addition, she has performed numerous in-depth customer and trade ally interviews for the largest and most controversial industrial customer projects, and is conducting key portions of the data analysis and reporting tasks. In addition, Ms. Fagan also had a major supporting role on the statewide process evaluation of PY2010-12 Nonresidential programs. Her various activities in support of this evaluation included: (1) designing the layout and assisting with populating a Program Characterization database; (2) co-leading the Program Assessment task, and assisting with completion of the Program Assessment for the Calculated Programs Group; and (3) developing and reviewing program performance metrics and indicators for all of the non-residential programs.
- **NYSERDA 2009-2011 Multifamily and 2010-2012 FlexTech Program Evaluations.** Ms. Fagan is leading the NTG (attribution) data collection and analysis efforts. She is centrally involved in all aspects of the Attribution work, including developing standardized attribution survey questions for participating and nonparticipating customers and trade allies, and designing the algorithm for computing the NTG ratio. This large effort includes comprehensive research and analysis of program-induced spillover. The evaluations are underway and the Multi-family study will be completed in Q4 2013.
- **Impact and Process Evaluation Studies for Commonwealth Edison's Portfolio of Energy Efficiency Programs (2009–Present).** In this 3 year project running from 2009 through 2011, Itron is serving in a primary role in several areas: leading evaluations of the Residential CFL Lighting program, the Residential Appliance Recycling program, the Commercial/Industrial Custom Rebate program and several low-income and public sector programs. Ms. Fagan is leading the Residential Appliance Recycling program evaluation, is leading survey instrument development and net-to-gross analysis for all program areas, is performing numerous in-depth interviews of the largest manufacturers and big box retailers participating in the Residential CFL Lighting program, and is serving as Itron's project manager.
- **Impact and Process Evaluation Studies for Philadelphia Electric Company's Portfolio of Energy Efficiency Programs (2009–Present).** In this 3 year project running from late 2009 through 2012, Itron is serving in a primary role in several areas: conducting primary data collection/analysis for a comprehensive Baseline Study, leading evaluations of the Residential CFL Lighting program, the Residential Appliance

Recycling program, and the Public Sector Custom Rebate program and several low-income and public sector programs. Ms. Fagan is leading the Residential Appliance Recycling program evaluation, is leading survey instrument development, data collection, and analysis/reporting for the Baseline Study, and is serving as Itron's project manager.

- **Impact Evaluation Studies for the 2006-2008 PG&E Fabrication, Process and Manufacturing, Southern California Industrial and Agricultural, and Major Commercial Programs (2008–2010).** These evaluations covered 3 years of program implementation, 2006 through 2008, and the primary focus was on impact evaluation. Ms. Fagan led the net-to-gross (attribution) data collection and analysis efforts for all 3 program areas. She performed numerous in-depth customer and trade ally interviews and conducted key portions of the data analysis and reporting tasks.
- **Multi-Program Impact, Process and Market Evaluations for Florida Power and Light (2005–Present).** This represents the largest, longest running, and most comprehensive integrated evaluation of energy efficiency and load control programs in the country. Ms. Fagan's roles in this project include project management, survey instrument development, analysis of survey data, and evaluation of program processes and market effects.
- **Impact Evaluation of Efficient Large Business Customer Economic Development Program for Wisconsin Public Service (2006–2009).** This project used an innovative impact evaluation approach, designed to maximize net savings and minimize free ridership by screening projects before the incentive level is decided upon. Ms Fagan served as the project manager, led the net-to-gross assessment of each customer project, oversaw the engineering review, and conducted the process evaluation.
- **National Energy Efficiency Programmatic Best Practices Study, Phase 3 (2006–2008).** Ms. Fagan managed the third phase of the National Best Practices Study of Energy Efficiency programs. Pacific Gas & Electric Company oversaw this study on behalf of Southern California Edison and Sempra Utilities. In addition to providing overall project management, Ms. Fagan performed a number of roles in the project including sample design, development of survey instruments, data collection and analysis and reporting. Project deliverables included an assessment of Portfolio Best Practices, research/reporting on new energy efficiency program approaches and technologies, and a Best Practices training workshop for California's energy efficiency program managers.
- **Impact, Process and Market Evaluation for the 2004-2005 California Statewide Standard Performance Contracting Evaluation. (2007–2008).** This comprehensive evaluation included impact, process and market evaluation components. The process evaluation included a summary of customer and energy-efficiency service provider participant experiences with the program, as well as findings related to energy efficiency behaviors and program awareness for the general population of nonparticipating customers. Ms. Fagan led the net-to-gross data collection and data analysis efforts, and

the process and market data analysis and reporting tasks. She conducted over two dozen NTG interviews of customers and EE service providers, calculated project-specific NTG ratios, and developed findings and recommendations addressing free ridership issues. She also analyzed and summarized the Participant and Nonparticipant survey findings for the Process and Market Evaluation components and developed related recommendations.

- **Energy Efficiency Program Support for Bonneville Power Administration (2006–2007).** Ms. Fagan assisted Bonneville Power Administration with the development of energy efficiency program designs, supporting educational materials and collateral for specific commercial and industrial end-uses and market segments including energy efficient lighting, compressed air, and water-wastewater applications. She completed an assessment of water-wastewater efficiency best practices and developed a recommended program approach for the water-wastewater segment.
- **Energy Efficiency Portfolio Redesign for Sacramento Municipal Utility District (2007).** Ms. Fagan assisted SMUD with the redesign of its energy efficiency portfolio, in order to increase its effectiveness and respond to significantly higher energy savings goals in the future. Project activities included a gap analysis of SMUD’s current programs against energy efficiency program best practices, and development of recommended program designs that incorporate best practices and address current gaps.
- **Director of Wisconsin’s Statewide Nonresidential Energy Efficiency Programs (2004–2005).** Ms. Fagan led the overall administration of Wisconsin’s statewide Focus on Energy Program for businesses, including budgeting, initiating, and managing contracts, coordinating implementation, achieving energy savings and market effects goals, and facilitating critical operations support activities. She oversaw a \$21 million annual program budget and managed a large external team of contractors responsible for developing and implementing energy efficiency projects at the end-user level.
- **Lead Evaluator for Wisconsin’s Statewide Industrial and Agricultural Programs (2001–2004).** Ms. Fagan led evaluation efforts for these two sectors, which included impact, process and market evaluation components. Impact evaluation activities included: engineering reviews of proposed large customer projects; free-ridership assessment based on the self-report approach; and on-site measurement and verification of installed measures. Ms. Fagan was integrally involved with development of program theory, sample design, development of survey instruments, analysis of survey data, and reporting tasks.
- **2002/2003 Single Family Rebate Program Evaluation (2003–2004).** A key activity in this evaluation was the assessment of market effects in selected equipment markets, based on the results of a series of trade ally surveys. Ms Fagan managed related data collection and analysis activities including survey instrument development, sample design, analysis of survey data, and evaluation of program market effects based on survey findings.

- **2002/2003 Upstream Lighting Program Evaluation** (2003–2004). This impact and market evaluation study included an in-depth assessment of lighting product markets. Ms. Fagan conducted in-depth interviews of lighting CFL bulb and fixture manufacturers, analyzed survey findings, along with other market information, and prepared a detailed analysis of CFL and lighting fixture markets based on the results.
- **2002 Statewide Residential Appliance Recycling Program Impact and Process Evaluation** (2003–2004) Ms. Fagan managed all aspects of the project including sample design, data collection (based on a large sample of lab-metered units), data analysis and reporting. Her roles in the project included sample design, survey instrument development, process evaluation, and analysis of program market effects based on survey findings.

## **Selected Reports and Papers**

*2006-2008 Evaluation Report for PG&E Fabrication, Process and Manufacturing Contract Group.* With M. Rufo, K. Bradley, A. Peterson and C. Jump. February 2010.

*2006-2008 Evaluation Report for the Southern California Industrial and Agricultural Contract Group.* With K. Bradley, A. Peterson, C. Jump, C. Torok, J. Shelton and S. Rosenbrock. February 2010.

*2006-2008 Major Commercial Contract Group – Final Impact Evaluation Report.* With SBW Consulting. February 2010.

*The Origins of the Misunderstood and Occasionally Maligned Self-Report Approach to Estimating the Net-To-Gross Ratio.* With R. Ridge, P. Willems and K. Randazzo. Presented at the International Energy Program Evaluation Conference, Portland, OR August 2009.

*Self-Report Methods for Estimating Net-to-Gross Ratios in California: Honest!™.* With R. Ridge and P. Willems, January 2009 AESP 19<sup>th</sup> National Energy Services Conference & Exposition.

*2004-2005 Statewide Nonresidential Standard Performance Contract Program Measurement and Evaluation Study - Impact, Process and Market Evaluation – Final Report.* With M. Rufo, A. Lutz and C. Jump. October 2008.

*Portfolio Best Practices Report* for the National Energy Efficiency Best Practices Study. With M. Rufo. July 2008.

*Energy Efficiency Best Practices: What's New?* With M. Rufo and R. Friedmann (PG&E), 2007 International Energy Program Evaluation Conference, Chicago, IL, August 2007.

*2006 Florida Power and Light Commercial/Industrial Program Evaluation.* With K. Bradley, C. Torok and S. Rosenbrock, May 2007.

*They Said It Couldn't Be Done: One Program's Approach to Minimization of Free Ridership.* With M. Rufo and K Bradley, 17<sup>th</sup> National Energy Services Conference, AESP, Las Vegas, NV, January 2007.

*2005 Florida Power and Light Residential Program Evaluation.* With K. Bradley, A. Buege and S. Rosenbrock, June 2006.

*2005 Florida Power and Light Commercial/Industrial Program Evaluation.* With K. Bradley and S. Rosenbrock, June 2006.

*Cold Hard Facts About Metering Refrigerators That Aren't There.* With M. Goldberg (KEMA) and S. Samiullah (SCE), 2004 ACEEE Summer Study on Energy Efficiency in Buildings, Asilomar, CA, August 2004.

*2002 Statewide Residential Retrofit Single-Family Home Energy Efficiency Rebate Program Evaluation.* With various authors, March 2004.

*Measurement and Evaluation Study of 2002 Statewide Residential Appliance Recycling Program.* With M. Goldberg and K. Agnew (KEMA), February 2004.

*Evaluation of the 2002 Statewide Crosscutting Residential Lighting Program - Final Report.* With T. Rasmussen (KEMA), October 2003.

*The Program Theory and Metrics Process.* With J Erickson (PA Consulting), O. Bloch and J. Sheil (Wisconsin Department of Administration), 2003 International Energy Program Evaluation Conference, Seattle, WA, August 2003.

## **Memberships/Associations**

Member of Association for Energy Services Professionals since 2007.

# Trade Association Memberships

Below is a list of Itron's Trade Association memberships.

American Council for an Energy-Efficient Economy (ACEEE)	National Rural Water Association (NRWA)
American Gas Association (AGA-LL)	NC Technology
American Gas Association (AGA-Owenton)	Northeast Gas Association (NGA)
American Public Gas Association (APGA)	Northwest Public Power Assoc (NWPPA)
American Water Works Association (AWWA)	Ohio Gas Association (OGA)
Arkansas Gas Association (AGA)	Ontario Energy Association (OEA)
Association of Energy Services Professionals (AESP)	Pa Rural Water Association
California Energy Efficiency Industry Council	Peak Load Management
California Municipal Utilities Assoc	Pennsylvania Municipal Authorities Assoc.
California Rural Water Association	PUR
Canadian Gas Association (CGA)	SCRWA (S.C. Rural Water)
CARILIC	SmartGrid Today
Chartwell	SmartGrid Consumer Collaborative
DRSG (Demand Response)	South Alabama Public Power (SAAP)
EEl	Southern Gas Association (SGA)
Energy Council of the Northeast	SWEMA
Evergreen Rural Water of WA	Tennessee Gas Association
Florida Natural Gas Association (FNGA)	Texas Gas Association (TGA - through EB)
Gridwise	TVPPA
Idaho Rural Water Association (IRVA)	Utilimetrics
International Trade Alliance	WEI
Kansas Rural Water	Washington Business Alliance
Kentucky Gas Association (KGA)	Washington Technology Industry
Maryland Rural Water Association	UTC
Midwest Energy Association (MEA)	UCAIug
Midwest Energy Efficiency Alliance (MEEA)	U-Snap Alliance
National Conference on Weights & Measure	ZigBee Alliance
National Rural Electric Association	

# Corporate Affiliations

As a leader in the industry, Itron has affiliations with many industry, research, advocacy, educational and standards organizations. Our current corporate affiliations are listed below.

<b>Organization Name</b>	<b>Organization Type</b>
Association of Water and Heat Meter Manufacturers	Industry Association
Demand Response and Smart Grid	Industry Association
Device Language Message Specification	Standards & Interoperability Organization
Electric Power Research Institute	Research & Development
Electricity for Europe	Industry Association
European Smart Metering Industry Group	Industry Association
Gimélec	Industry Association
Institute of Electrical and Electronics Engineers	Standards & Interoperability Organization
Internet Engineering Task Force	Standards & Interoperability Organization
Interoperable Device Interface Specifications (IDIS) Industry Association	Standards & Interoperability Organization
IPSO Alliance	Industry Association
National Electrical Manufacturers Association	Standards & Interoperability Organization
Open Meter Project	Standards & Interoperability Organization
Open Metering System	Standards & Interoperability Organization
Open SmartGrid	Standards & Interoperability Organization
PowerLine Intelligent Metering Evolution Alliance	Standards & Interoperability Organization
Smart Meter Manufacturer's Association of America	Industry Association
Smart Water Networks Forum	Industry Association
SunSpec Alliance	Industry Association
UCA International Users Group	Industry Association
USNC TAG on IEC TC13	Standards & Interoperability Organization
Utility Smart Network Access Port	Standards & Interoperability Organization
Water for People	Research & Development
Wi-Fi Alliance	Industry Association
ZigBee Alliance	Standards & Interoperability Organization

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# FedEx US Airbill

Express

FedEx Tracking Number **8638 5603 9115**

Form 70 No. **0215** Recipient's Copy

**1 From** This portion can be removed for Recipient's records  
Date 7/18/2013 FedEx Tracking Number 863856039115

Sender's Name PPFNVA LETTER Phone 740 904-0414

Company ITRON

Address 603 OFFICERS ROW STE 430

City VANCOUVER State WA ZIP 98661

**2 Your Internal Billing Reference**

**3 To**  
Recipient's Name ROSEMARY CHAVEITA Phone 717 783-5242

Company PENNSYLVANIA PUBLIC UTILITY COMMISSION

Recipient's Address COMMONWEALTH KEystone BUILDING

Address 400 NORTH STREET

City HARRISBURG State PA ZIP 17120

0372830910



8638 5603 9115

**4a Express Package Service**

<input type="checkbox"/> FedEx Priority Overnight Next business morning Shipments will be delivered on Monday unless SATURDAY Delivery is selected.	<input checked="" type="checkbox"/> FedEx Standard Overnight Next business afternoon Saturday Delivery NOT available.	<input type="checkbox"/> FedEx First Overnight Earliest next business morning Delivery to select locations. Saturday Delivery NOT available.
<input type="checkbox"/> FedEx 2Day Second business day Shipments will be delivered on Monday unless SATURDAY Delivery is selected. <small>FedEx Envelope rate not available. Minimum charge One-pound rate.</small>	<input type="checkbox"/> FedEx Express Saver Third business day Saturday Delivery NOT available.	

**4b Express Freight Service**

<input type="checkbox"/> FedEx 1Day Freight* Next business day Shipments will be delivered on Monday unless SATURDAY Delivery is selected.	<input type="checkbox"/> FedEx 2Day Freight Second business day Shipments will be delivered on Monday unless SATURDAY Delivery is selected.	<input type="checkbox"/> FedEx 3Day Freight Third business day Saturday Delivery NOT available.
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\* Call for Distribution. \*\* To most locations.

**5 Packaging**

<input type="checkbox"/> FedEx Envelope*	<input type="checkbox"/> FedEx Pak* <small>Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.</small>	<input type="checkbox"/> FedEx Box	<input type="checkbox"/> FedEx Tube	<input type="checkbox"/> Other
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\* Declared value limit \$500

**6 Special Handling**

<input type="checkbox"/> SATURDAY Delivery <small>Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 2Day Freight.</small>	<input type="checkbox"/> HOLD Weekday at FedEx Location <small>Not available for FedEx First Overnight.</small>	<input type="checkbox"/> HOLD Saturday at FedEx Location <small>Available ONLY for FedEx Priority Overnight and FedEx 2Day. To select locations.</small>
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Does this shipment contain dangerous goods?  
One box must be checked.

<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <small>As per attached Shipper's Declaration.</small>	<input type="checkbox"/> Yes <small>Shipper's Declaration not required.</small>	<input type="checkbox"/> Dry Ice <small>Dry Ice, 5 UN 1845</small>
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Dangerous goods (including any 900) cannot be shipped in FedEx packaging.  Cargo Aircraft Only

**7 Payment Bill to:** Enter FedEx Acct. No. or Credit Card No. below.  Debit/FedEx Acct. No.

<input checked="" type="checkbox"/> Sender <small>Not in Section 1 will be billed.</small>	<input type="checkbox"/> Recipient	<input type="checkbox"/> Third Party	<input type="checkbox"/> Credit Card	<input type="checkbox"/> Cash/Check
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Total Packages: 1 Total Weight: 4

\*Our facility is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.

**8 Residential Delivery Signature Options** If you require a signature, check Direct or Indirect.

<input checked="" type="checkbox"/> No Signature Required <small>Package may be left without obtaining a signature for delivery.</small>	<input type="checkbox"/> Direct Signature <small>Someone at recipient's address may sign for delivery. Fee applies.</small>	<input type="checkbox"/> Indirect Signature <small>If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.</small>
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