

# **Third Party Workpaper Intellectual Property, Innovation, and Sustainability**

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Presentation for CAL TF  
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## **Robert Mowris, Verified® Inc.**

- Building scientist with 34 years experience designing, evaluating, and testing energy and water efficiency products, programs, policies
- Managed 300 EM&V studies and workpapers for residential and nonresidential programs
- Authored more than 70 published papers
- 6 US patents and multiple patents pending
- MS & BSME in Engineering and BS in Education
- Worked 5 yrs at LBNL with Dr. Arthur Rosenfeld

# **Presentation Overview**

- Currently only IOUs can submit workpapers
- Third party (3P) workpapers cannot receive Ex Ante Review (EAR) causing lost opportunities
- Worse, Intellectual Property (IP) is not respected
- Need RFQ for EAR subject matter experts paid \$2500 to \$5000 per workpaper by third parties who pay for research and workpaper preparation
- Proprietary 3P workpapers respect IP, reduce lost opportunities, and increase energy savings, cost effectiveness, innovation, and sustainability

# Intellectual Property (IP)

- US IP is worth \$5.8T, 35% of US GDP, 74% of US exports, 40% of growth, and 40M US jobs
- IP theft costs \$320B, >1M jobs, \$144B taxes and diverts creativity and incentives away from R&D and innovation (US Int. Trade Comm 2013)
- IP theft negatively impacts health, safety (UL-listing), warranties, and energy savings
- Infringers profit from IP owners and citizens who pay for R&D and workpapers
- Price erosion is used to offset lower WP savings

# Non-DEER Workpapers D.12-05-015 OP 144

“PG&E, SCE, SDG&E, and SCG shall:

- (1) Use due diligence when developing proposed ex ante values to represent expected kWh and therm savings, costs, and EUL;
- (2) Undertake research, in collaboration with CPUC, as required, to establish reasonable expected values; and
- (3) Pilot promising new technologies and use results of research undertaken during the piloting period to improve ex ante values.”

# Issues with Current Workpaper Process

- Due diligence, collaboration and pilot programs are either inconsistent or missing
- Only IOUs can submit workpapers which creates insurmountable barriers for new technologies and programs
- Any or all IOUs can veto innovative new technologies or programs simply by inaction
- Lack of respect for intellectual property, emerging technologies, and third party workpapers significantly hampers innovation

# Workpaper Intellectual Property Issues

- Proprietary workpapers are protected by copyrights, trademarks and patents enumerated by US Constitution Article I, Section 8, Clause 8
- Derivative workpapers for commercial gain impacting market for original workpapers are not “fair use” per Copyright Law (17 U.S.C. § 102)
- False descriptions and dilution are forbidden under 15 U.S. Code § 1125 per Lanham Act
- Reporting lower prices is an issue under Sherman Act and Federal Trade Commission Act

# Copyright Act of 1976 Defines “Fair Use”

- 1) Purpose and character of use (criticism, news, research, educational, transformative);
- 2) Nature of copyrighted work (competing with original source w/o permission is not fair use);
- 3) Quantity and quality of the original work used in derivative work (expression versus idea);
- 4) Impact of use on market or potential market for original work is important; and
- 5) Violations often occur when use is primarily motivated by commercial gain versus fair use.



# Experience Submitting 3P Workpapers

- Verified® published two third party workpapers on 03-16-12 (PGE0077) and 04-04-12 (SCG0077) which were plagiarized by SDG&E on 10-25-12 (WPSDGEREHC0024)
- Plagiarizing copyrighted work is illegal under 1897 US Copyright Law per 18 U.S.C. § 2319(b)
- Removing proprietary information induces infringement, creates confusion and uncertainty
- Unauthorized workpapers potentially infringe on U.S. copyrights, trademarks, and patents

# SDG&E WPSDGEREHC004 Infringes Copyright of 2012 Verified® Workpapers

WPSDGEREHC0024 Work Paper PGE0077

Revision # 0 Revision # 0

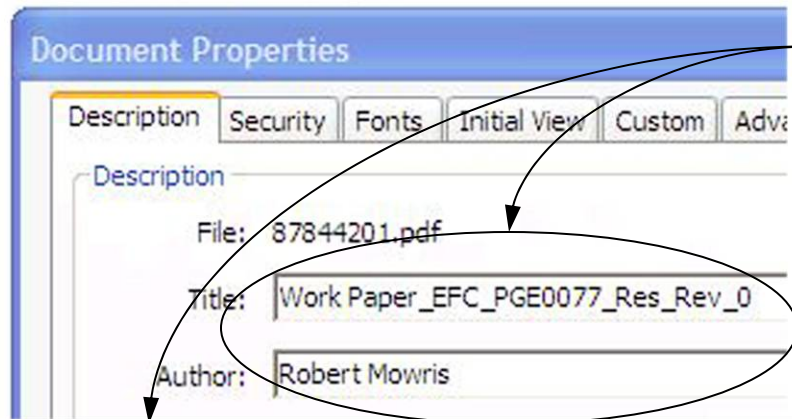
San Diego Gas & Electric  
Energy Efficiency Engineering

Verified, Inc.

## California HVAC Upgrade: Efficient Fan Controller (EFC) – Residential

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March 16, 2012



1. Removed original author and title, altered tables and footer identifying products not tested nor evaluated by Verified® Inc. including “i-O-Stat HVAC AAA EFC” (pp. i, v, vi, 25, 26, 29 and 30)
2. 2012 Verified® workpapers are protected by copyrights TX 8-1870702 and TX 8-247-614
3. Derivative, condensed, or incomplete workpaper expressions cannot be published without permission.

i-O-Stat HVAC AAA EFC SDG&E Work Paper Copy v October 25, 2012  
San Diego Gas & Electric.

# SCE SCE15HC052.2 Infringes on Copyrights, Trademarks, Patents

Work Paper SCE15HC052

Revision 2

Southern California Edison

1. Potential infringement of trademarks Efficient Fan Controller® (5,163,211) and EFC® (5,198,335)
2. Potential infringement of copyright (8-187-702 and 8-197-614)
3. Potentially inducing patent infringement (US8763920, US9438933, and US9500386)

## Efficient Fan Controller for Residential Air Conditioners and Furnaces

4. Potential misrepresentation with “Furnaces” on cover but reporting zero heating savings (33 U.S. Code § 931)

5. \$25/unit product cost based on 2012 SCG0077 and ET11SCE1130 is incorrect (Sherman Act issue)
6. 03-21-13 Verified® EFC® SCG0077.1 and PGE0077.1 use \$50/unit product cost. 02-07-13 GreenFan® letter to SDG&E implementer quotes \$50 to \$70/unit

### 4.2 MEASURE CASE COST

The measure equipment material cost was determined by reviewing the purchased price for two fan delay controllers tested in the ET laboratory report [A]. The price paid was \$25 per controller, plus \$3.50 for shipping and handling. The price was cross-referenced with Southern California Gas Company's work paper SCG0077.0 California HVAC Upgrade: Efficient Fan Controller (EFC) – Residential, which listed the material equipment cost at \$25. The controller cost is also normalized on a per-ton basis using the

## **EFC<sup>®</sup> versus SCE Workpaper**

- EFC<sup>®</sup> workpaper single family savings are 18% less than SCE
- EFC<sup>®</sup> workpaper multi-family savings are 9% less than SCE
- EFC<sup>®</sup> workpaper mobile home savings are greater due to SCE using lower UEC values
- EFC<sup>®</sup> workpaper includes a 5-year EUL retention study and participant NTGR study

## EFC<sup>®</sup> Heating Savings

- EFC<sup>®</sup> gas furnaces savings are 16% enabled by operating fan at high speed after brief delay to satisfy thermostat sooner and variable fan-off delay based on duration of call for heating
- EFC<sup>®</sup> heat pump heating savings are 13% and hydronic heating savings are 16% enabled by variable fan-off delay based on duration of thermostat call for heating
- EFC<sup>®</sup> heating savings doubles cost effectiveness

## **Third Party Workpapers**

- CPUC allows third party workpapers to be submitted for proprietary products or services
- Workpapers need to meet minimum standards such as laboratory testing by independent AHRI-certified lab or field testing, billing data, calibrated DEER models, correct costs, etc.
- No ratepayer funding should be provided for third party workpaper R&D or preparation
- Ex Ante Review fees need to be \$2500 to \$5000 to be self sustaining and encourage quality

# Funding Requirements for ET Products

- Is the product team qualified to succeed?
- Is product market ready with pending or issued patents and a credible marketing plan?
- Is product easy to install, use, and maintain?
- Are products or services minimally acceptable compared to baseline?
- Is there a defensible workpaper with scientific evidence to support energy savings, and cost effectiveness to survive the “Valley of Death”?

# Technical Requirements for Workpapers

- UEC or EUI data required for baselines
- Description of how measure saves energy, equations, key variables, and uncertainties
- Lab or field tests, billing data to support savings
- Measure costs based on up-to-date surveys excluding price erosion by infringers
- QI/QM WFE&T instructions, data tracking
- Optional retention studies for EUL, surveys for NTGR, EM&V plans to measure savings



# Recommendations and Conclusions

- Need RFQ for EAR subject matter experts
- 3Ps pay for R&D and \$2500 to \$5000 fees for EAR of workpapers meeting minimum standards
- Rolling RFP process for 3Ps to submit program proposals for funding with approved workpapers
- RFQ for EM&V experts to evaluate technologies and programs to update workpapers
- Proprietary 3P workpapers respect IP, reduce lost opportunities, and increase energy savings, cost effectiveness, innovation, and sustainability

# Thank you!

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