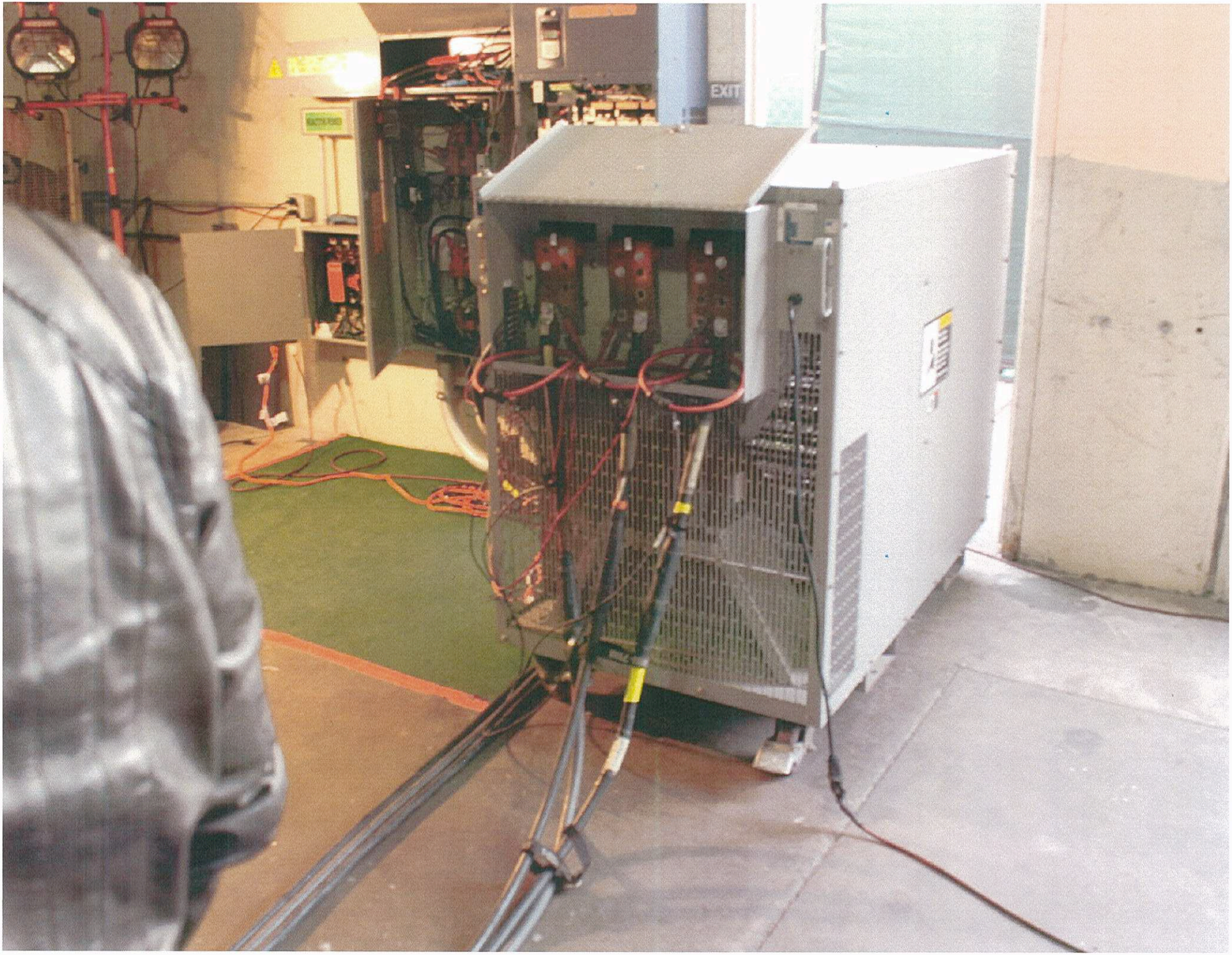
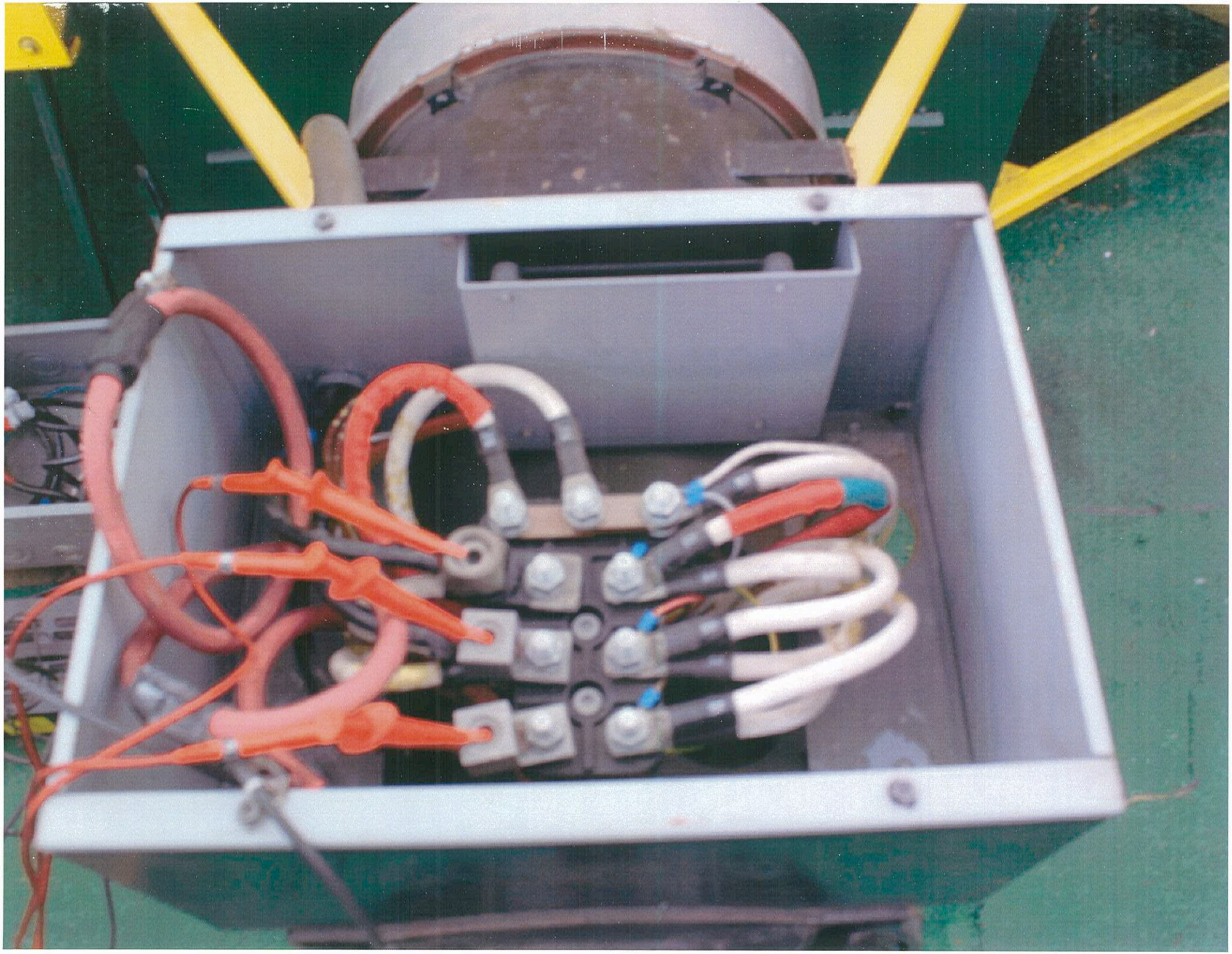

EXIDE


EXIT


EXIT
REACTOR POWER



ABM

Electrical
Power Services

Job Site:

Cogar International Energy Corp.
15171 Pipeline Lane
Huntington Beach, CA 92649

Power Quality Test Report

*REACTOR PROJECT

03.27.2015

Power Quality Field Engineer:
Renan Gongora

Project # FS002085

Attached are the reports as requested,
The final test results showed the following:

1. Input Power from Edison Grid was 227 amps = 152 KW
2. Output power from the Hydro-Electric Reactor was recorded (Selected) at 250 KW on the Load Bank.
3. The Net Power was 98KW.

Please note :
However, the Amps regulator was not adjusted to reflect the true amps output from the **Generator.** Minor adjustments on the voltage regulator will correct this problem.

We did not manually switch power from Edison to the reactor motor because it is advisable to use only the Automatic Transfer Switch Control.

Renan Gongora
ATS & Electrical Controls Specialist

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Edison_27Mar15_Test Conclusion

Edison_27Mar15_Test Conclusion
ABM REPORTS AND MISC\Reactor Project_20Mar15\EDISON FINAL_27MAR15.log
Test began at 03/27/15 18:27:55
Test ended at 03/27/15 18:39:31

Measurement	Value	Units
Voltage, Phase 1, Ave:	482.6	volts
Voltage, Phase 1, Max:	494.0	volts
Voltage, Phase 1, Min:	343.2	volts
Voltage, Phase 2, Ave:	482.5	volts
Voltage, Phase 2, Max:	527.0	volts
Voltage, Phase 2, Min:	345.8	volts
Voltage, Phase 3, Ave:	481.6	volts
Voltage, Phase 3, Max:	492.9	volts
Voltage, Phase 3, Min:	369.5	volts
Current, Phase 1, Ave:	89.2	amps
Current, Phase 1, Max:	247.6	amps
Current, Phase 1, Min:	0.0	amps
Current, Phase 2, Ave:	90.5	amps
Current, Phase 2, Max:	247.3	amps
Current, Phase 2, Min:	0.0	amps
Current, Phase 3, Ave:	88.8	amps
Current, Phase 3, Max:	242.7	amps
Current, Phase 3, Min:	0.0	amps
True Power, Phase 1, Ave:	22117.6	Watts
True Power, Phase 1, Max:	63385.6	Watts
True Power, Phase 1, Min:	0.0	Watts
True Power, Phase 2, Ave:	22529.1	Watts
True Power, Phase 2, Max:	63488.0	Watts
True Power, Phase 2, Min:	0.0	Watts
True Power, Phase 3, Ave:	22081.2	Watts
True Power, Phase 3, Max:	61849.6	Watts
True Power, Phase 3, Min:	0.0	Watts
VA Power, Phase 1, Ave:	24543.5	VA
VA Power, Phase 1, Max:	68044.8	VA
VA Power, Phase 1, Min:	0.0	VA
VA Power, Phase 2, Ave:	25070.2	VA
VA Power, Phase 2, Max:	68403.2	VA
VA Power, Phase 2, Min:	0.0	VA
VA Power, Phase 3, Ave:	24366.4	VA
VA Power, Phase 3, Max:	66150.4	VA
VA Power, Phase 3, Min:	0.0	VA
Power Factor, Phase 1, Ave:	0.81	
Power Factor, Phase 1, Max:	1.00	
Power Factor, Phase 1, Min:	0.52	
Power Factor, Phase 2, Ave:	0.82	
Power Factor, Phase 2, Max:	1.00	
Power Factor, Phase 2, Min:	0.36	
Power Factor, Phase 3, Ave:	0.77	
Power Factor, Phase 3, Max:	1.00	
Power Factor, Phase 3, Min:	0.07	
Total Power Factor:	0.90	

Frequency, Ave:	60.0	Hz
Frequency, Max:	60.7	Hz
Frequency, Min:	59.5	Hz
THD, Voltage, Phase 1:	3.5	%
THD, Voltage, Phase 2:	3.6	%
THD, Voltage, Phase 3:	3.7	%
THD, Current, Phase 1:	53.9	%
THD, Current, Phase 2:	56.7	%
THD, Current, Phase 3:	47.0	%
THD, Current, Neutral:	0.0	%
Energy, Phase 1:	4.62635	KWH
Energy, Phase 2:	4.71385	KWH
Energy, Phase 3:	4.61990	KWH
Energy, Total Elapsed:	13.96009	KWH
Energy, estimated per month:	52747.5	KWH
Cost, Total Elapsed:	$0.44	$
Cost, estimated per month: (at $0.03170/KWH)	$1,672.09	$
Peak Demand:	187545.6	Watts @ 03/27/15 18:34:55
Peak Ave VA:	200755.2	VA @ 03/27/15 18:34:31

Report Prepared by: Renan Gongora
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ROBERT TOMASIAN, P.E.

OBJECTIVE |

Diversified and solid experience in the field of Electrical Engineering including Consulting, Design, Project Management, Research, Energy Management, Testing, and Implementation of power distribution systems.

SKILLS & ABILITIES |

Experience in: Plan Check and Enforcement of Electrical and Life Safety codes and regulations including NEC, NFPA72, IEEE, State Energy compliance standards.
Experience in: Product Safety and U.L. based Product Safety standards.

Experience in: Building Electrical Fire Life Safety, and Network Construction and Troubleshooting.

EXPERIENCE |

[**2006-Present**] **LADWP , LEED Facilities Design Group**

Electrical Engineer Associate

Designing Power, Energy Management, Control, and Life Safety Systems for the LADWP per State, Local Electrical, and Fire, IEEE and NEC codes and regulations including LEED Policies. Doing Project Management, Feasibility Analysis, Budgeting, Procurement, and Day-to-day Operation of DWP's new and existing Electrical and Life Safety projects. Supporting LADWP's technicians, architects, and engineers with technical and engineering related Issues and procedures.
Researching new Lighting and Control products to Improve facilities electrical power consumption.

[2003-2006] **LADWP , Network Security** Group

Electrical Engineer Associate

Worked with Network Security Group in charge of Design, Programming, Maintenance, Trouble Shooting, and Implementation of LADWP's LAN/WAN projects. Did Project Management, Feasibility Analysis, Budgeting, Procurement, Expansion, Upgrade, and Implementation of LADWP's existing Network Security system.

[**2003-2003**] **LAPW , Sanitation**

Electrical Engineer Associate

Worked with Sanitation Maintenance Group in charge of L.A. Hyperion's Day-today Operation of the facility's Electrical Equipment, Maintenance and Upgrade.
Did Inspection, Design and Project Management to Replace, Upgrade, and Troubleshoot plant's Motor Controls, VFDs, Transformers and Distribution Boards.

[**1985-2002**] **LABS , Electrical Division**

Electrical Engineer Associate

Electrical & Life Safety Plan Check Group:

Did Electrical Plan Check for Residential, Commercial, and Industrial buildings per NEC, UBC, Fire, and other State/Local codes and regulations.
Helped public with Technical Questions.
Did Electrical Code Enforcement and Plan Check of existing high rise buildings for compliance with "Existing High-Rise Retrofit Ordinance" per, NFPA 20, NFPA72, NEC, UBC, Fire, and other State/Local codes and requirements.
Coordinated with Electrical inspection, contractors and engineers to investigate and evaluate existing High-Rise buildings' Life-Safety Status to provide practical solutions for compliance.

Electrical Test Laboratory:

Did Product Safety Testing and analysis of Non-Listed electrical equipment, machinery, and installations based on U.L., NEC, NFPA72, and local safety standards.
Prepared Test and Safety Reports/Evaluations for Listing and Labeling purposes.
Supported public and manufacturers with Product Safety and Listing Related Issues and Procedures.

EDUCATION

[1991-94] USC — Los Angeles, CA

MBA/Project Management and Finance

[1981-84] CSULA — Los Angeles, CA

BS/ELECTRICAL ENGINEERING

PROFESIONAL AFFILIATIONS & CERTIFICATES

NFPA Certified member

California Certified Professional Engineer

REFERENCES

Upon Request

Hydro-Electric Reactor -Test results witnessed and recorded by: Robert Tomasian, P.E.

Report prepared by: TomTech Engineering, Inc.

Test date: March 27, 2013 at Huntington Beach CA
Attention: Cogar International Energy Corporation
Date prepared: March 29, 2013

To improve on the reactor's previous Input/output Efficiency test, on March-20 2013, which resulted to a 78.0% max. Efficiency, modifications were made to upgrade the auxiliary motor driver to 250HP.

The subsequent March-27 reactor Input/Output Test employing the modified system yielded the following results:

CONNECTED RESISTIVE LOAD (KW)	480V-3PH UTILITY , "SCE", INPUT CURRENT (AMPS)	REACTOR OUTPUT VOLTAGE (VOLTS)	REACTOR MOTOR INPUT SPEED (REV./MIN.)	INPUT POWER AT 85% P.F. (KW)	OUTPUT EFFICENCY
0.0	81.4	410.0	2900	57.46	N/A
50.0	127	410.0	2900	89.64	55.8%
100.0	173	410.0	2900	122.11	81.9%
150.0	223	410.0	2900	157.4	95.3%
175.0	244	410.0	2900	172.22	101.6%
200.0	269	410.0	2900	189.87	105.3%

Note-1) The KW loss due to feeder conductors is neglected.
The KW loss, estimated 10-15 KW, of un captured generated wind is neglected.
Note-2) 85% P.F. was recommended by the SCE utility engineers based on motor nameplate ratings.
Note-3) Input utility voltage is assumed to be constant at 480V L-L-3PH.

Note-4) the connected load-bank employed was of a purely resistive type with "external fan" setup.
Note-5) to prevent motor overheating, the reactor's max. operating capacity was estimated to 200KW.
Note-6) to prevent any mechanical damages as a result of excessive vibration, the input motor speed was set to 2900RPM Max.

Conclusion:

Based on the above test results, and pending upon instrumentation accuracy tolerance, the reactor's output efficiency exceeded ***100%*** at 175KW connected-load and ***improved further*** at 200KW connected-load.

The above test results suggest that the reactor's outputs 200 ***KW*** using only ***189.87KW*** and without even considering the KW loses due to cable resistance and un-captured wind.

(Conclusion Continued)

Adjustments to minimize the feeder KW losses, improving the system power factor, and converting the un- captured generated wind to usable output will further improve the reactor's efficiency.

My Background:

I'm an independent professional electrical engineer specialized in power distribution and energy management with over 27 years in the field of power distribution and building electrical engineering.

Sincerely,

Robert Tomasian, P.E
TomTech Engineering, Inc.
818-219-7192
Roberttomasian@aol.com

NOTE: Since the comprehensive tests conducted on March 27th, 2013, the Hydro-Electric Reactor technology has been upgraded to generate commercial-level quantities of electricity. The efficiency of the system has also been greatly enhanced.

Robert Tomasian; P.E
TomTech Engineering, Inc.
March 29th, 2014