

## DOCKETED

<b>Docket Number:</b>	08-AFC-09C
<b>Project Title:</b>	Palmdale Energy Project (Formerly Palmdale Hybrid Power Plant) - Compliance
<b>TN #:</b>	215189
<b>Document Title:</b>	Palmdale Energy LLC's Opening Testimony
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<b>Docketed Date:</b>	1/6/2017

Palmdale Energy, LLC's Opening Testimony

Palmdale Energy Project (08-AFC-09C)

January 6, 2017

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

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I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Project Description for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Johns

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

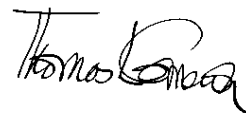
**DECLARATION OF THOMAS  
CAMERON**

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I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Project Description for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
PROJECT DESCRIPTION  
OPENING TESTIMONY**

I. Name:

Thomas Johns  
Thomas Cameron

II. Purpose:

Our testimony addresses the subject of Project Description associated with the construction and operation of the Palmdale Energy Project as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

**Thomas Johns:** I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

**Thomas Cameron:** I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

We have reviewed the Final Staff Assessment (FSA) Project Description section and assisted in the preparation of the Project Description section of the Petition including post filing documents.

Detailed descriptions of our qualifications are presented in the resumes which are included in Attachment A to this Opening Testimony package.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the Exhibits labeled Project Description included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

We have reviewed the Project Description section contained in FSA and we agree that the section accurately describes the PEP except for the following.

Figure 2 at the end of the Project Description section of the FSA does not accurately show the PEP. We request that the Final Decision simply include Figure 2-1 included in Revised Petition For Amendment, which shows a more detailed depiction of the modifications proposed by the PEP.

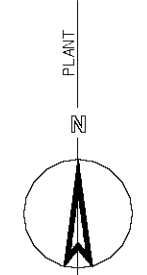
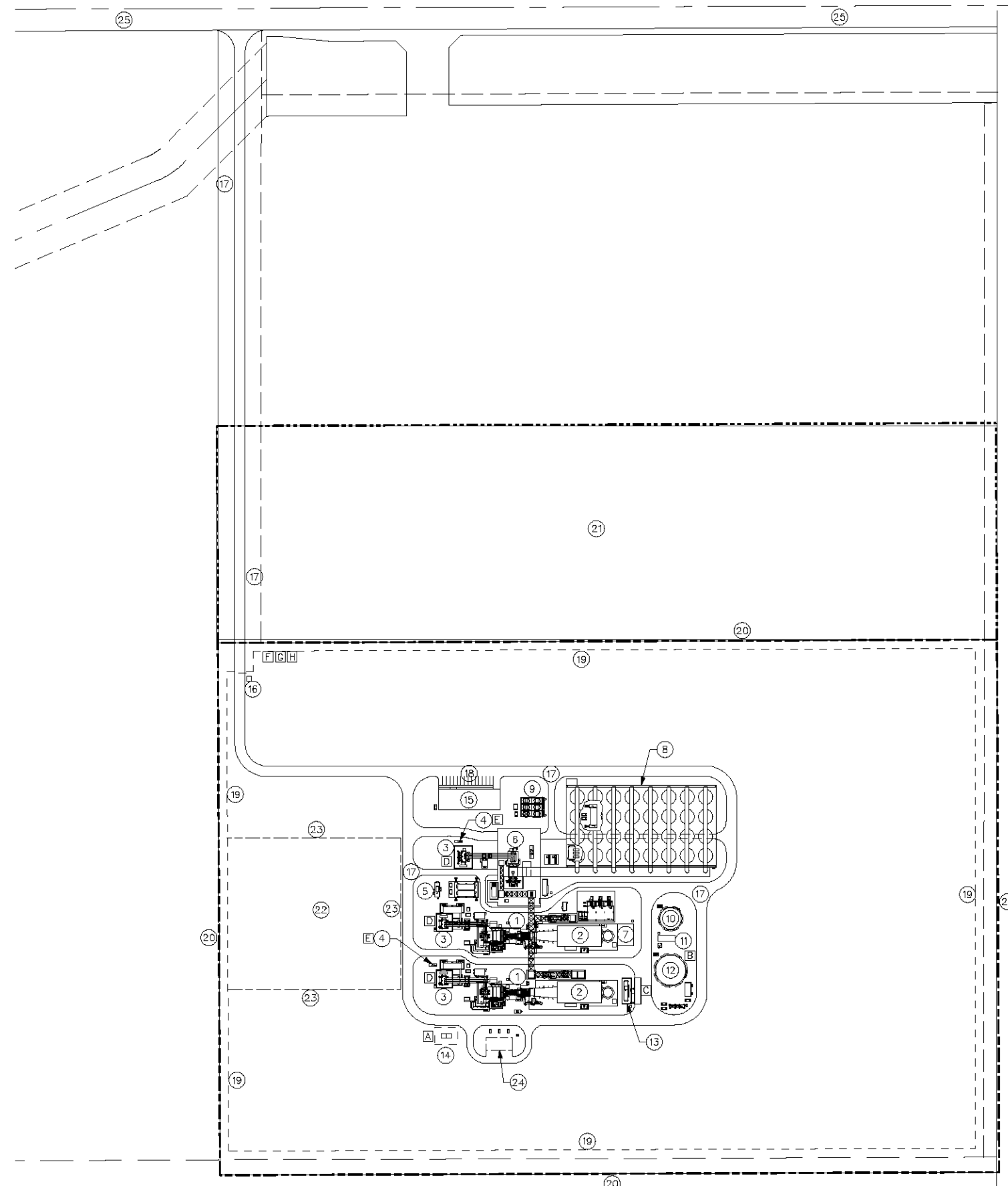
In addition, in our review of the Final Staff Assessment, we noticed that the Natural Gas Compression Equipment, which is necessary to ensure that minimum facility natural gas pressures are met when Southern California Gas is not able to deliver natural gas at the required pressure levels, is not described in the project description materials. Therefore we are providing updated materials, attached to this Project Description Testimony. This equipment has always been part of the Project, just not adequately described. This equipment is included in facility noise calculations and therefore no changes to the analysis or Noise Conditions of Certification are required.

We request that the Final Decision utilize the updated Site Plans, attached, which identify the Natural Gas Compression Equipment.

1. The (2x1 5000F TKY Site Plan) drawing replaces the Petition For Amendment *Figure 2-3 Plot Plan*.
2. (2x1 5000F TKY GA) drawing replaces the Revised Petition For Amendment *Figure 2-4 General Arrangement*. Item #55 represents the Natural Gas Compression Equipment.
3. Updated *Exhibit 2-A – Equipment Dimensions*.

We request the Final Decision include the following paragraph describing the Natural Gas Compression Equipment.

Redundant gas compressors, either 3x50% or 2x100%, will be provided to increase gas pressure from pipeline pressure to that need for the gas turbines at those times when pipeline pressure is less than the minimum pressure required by the gas turbines. The gas compressors will be located in individual acoustic enclosures or a common building/enclosure. The compressors will be powered by electric motors; the maximum required compression power is estimated to be approximately 3800 horsepower.



**NOTES**

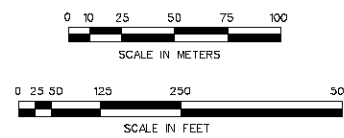
1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
2. REFERENCE DRAWING GH99050101 FOR POWER ISLAND EQUIPMENT IDENTIFICATION.
3. REFERENCE DRAWING GH99060101 FOR FACILITY PLOT PLAN EQUIPMENT IDENTIFICATION.

**LEGEND**

- |    |             |                                           |
|----|-------------|-------------------------------------------|
| 1  | UMB         | GAS TURBINE ENCLOSURE                     |
| 2  | UHA         | HEAT RECOVERY STEAM GENERATOR             |
| 3  | BAT         | GENERATOR STEP UP TRANSFORMER             |
| 4  | UBH         | OIL/WATER SEPERATOR                       |
| 5  | XKA         | EMERGENCY DIESEL GENERATOR                |
| 6  | MA/MKA      | STEAM TURBINE & GENERATOR                 |
| 7  | UHB         | AUXILIARY BOILER                          |
| 8  | URC         | AIR COOLED CONDENSER                      |
| 9  | URB         | CLOSED COOLING WATER FIN FAN COOLER       |
| 10 | UGC         | DEMIN. WATER STORAGE TANK                 |
| 11 | UGD         | WATER TREATMENT MODULES                   |
| 12 | UGA/UGF     | RAW/FIRE WATER STORAGE TANK               |
| 13 | UYX         | AMMONIA STORAGE/UNLOADING                 |
| 14 | EKD/EKE     | FUEL GAS REGULATION/CONDITIONING/METERING |
| 15 | UCA/UST/UYC | ADMIN./CONTROL RM. WAREHOUSE BUILDING     |
| 16 | UYE         | GUARD HOUSE                               |
| 17 | UZAD1       | ROAD                                      |
| 18 | UZD         | PARKING AREA                              |
| 19 | UZJ01       | FENCE & GATES                             |
| 20 |             | PROPERTY BOUNDARY                         |
| 21 |             | 20 ACRE LAYDOWN AREA                      |
| 22 | UAA         | SWITCHYARD (BY OTHERS)                    |
| 23 | UZJ02       | SWITCHYARD FENCE (BY OTHERS)              |
| 24 | EKH         | GAS COMPRESSORS (BY OTHERS)               |
| 25 | UZA02       | EXISTING ROAD                             |

**TERMINAL POINTS**

- |   |                               |
|---|-------------------------------|
| A | FUEL GAS SUPPLY               |
| B | RAW WATER SUPPLY              |
| C | AMMONIA SUPPLY                |
| D | HV POWER                      |
| E | OILY WATER (MANUAL DISCHARGE) |
| F | POTABLE WATER                 |
| G | SANITARY SEWER                |
| H | TEMPORARY CONSTRUCTION POWER  |



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<b>CONCEPTUAL</b>			
Origin	Origin No.	Orig. FC	
Project: <b>SUMMIT POWER - PALMDALE</b>			PLG/PO: <b>US1327</b>
Drawn	Date	Name	Role
16/11/18	16/11/18	D. STEINBERGER	The
Checked	Date	Name	Role
16/11/18	16/11/18	A. BENNAN	GENERAL ARRANGEMENT
Checked	Date	Name	Role
16/11/18	16/11/18	K. CHERRAN	SITE PLAN
Description: <b>SCC6-6000F 2 X 1 W/AIR COOLED CONDENSER HEAVY DUCT FIRING</b>			Reg No: <b>A-3363-02</b>
Dept.	Disc.	UNIC	Rev.
<b>SIEMENS</b>	CRL PLCI		<b>02</b>
Energy, Inc.			Version
Project No: <b>GH99110101</b>			Page No: <b>1 of 1</b>
Drawing title: <b>GH99110101_R2.dgn</b>			Supervisor

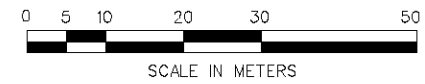
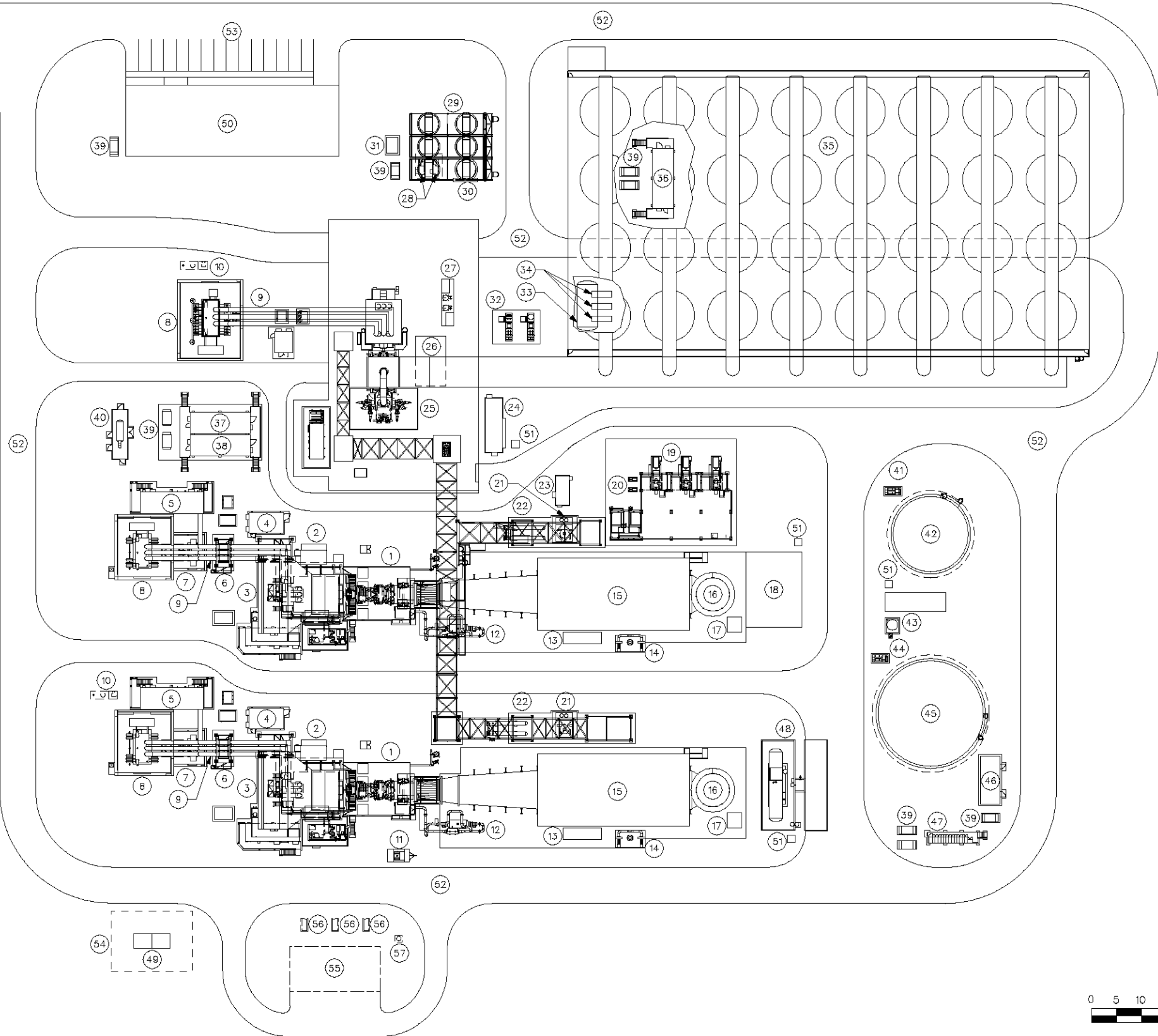
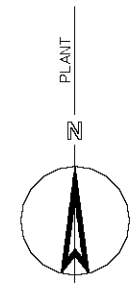
Rev.	Date	Created	Checked	Details of Revision



8 7 6 5 4 3 2 1

- NOTES**
1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
  2. ROTOR AIR COOLER (ITEM 12) CANNOT BE MOVED DUE TO PRE-ENGINEERED PIPING. MOVING THE UNIT WILL IMPACT COOLER PIPING STRESSES AND LOADS.
  3. CLOSED COOLING WATER FIN FAN COOLER (ITEM 29) IS FOR COOLING BALANCE OF PLANT EQUIPMENT AND STEAM TURBINE GENERATOR ONLY.
  4. REFERENCE DRAWING GH99050101 FOR POWER ISLAND EQUIPMENT IDENTIFICATION.

- LEGEND**
- |    |             |                                                |
|----|-------------|------------------------------------------------|
| 1  | UMB         | GAS TURBINE ENCLOSURE                          |
| 2  | MKJ         | GENERATOR AIR INLET FILTER                     |
| 3  | MBL         | GAS TURBINE AIR INLET FILTER                   |
| 4  | CJT         | SEE/SFC PACKAGE                                |
| 5  | UBA03-04    | MV SWITCHGEAR                                  |
| 6  | BAC         | GENERATOR CIRCUIT BREAKER                      |
| 7  | BBT         | AUXILIARY TRANSFORMER                          |
| 8  | BAT         | GENERATOR STEP UP TRANSFORMER                  |
| 9  | BAA         | ISOPHASE BUS DUCT                              |
| 10 | UBH         | OIL/WATER SEPERATOR                            |
| 11 | MBY         | MOBILE COMPRESSOR WASH SKID                    |
| 12 | MBH         | ROTOR AIR COOLER                               |
| 13 | EKT         | DUCT FIRING SKID                               |
| 14 | HSK         | SCR SKID                                       |
| 15 | UHA         | HEAT RECOVERY STEAM GENERATOR                  |
| 16 | UHN         | HRSG EXHAUST STACK                             |
| 17 | CFE         | CONTINUOUS EMISSIONS MONITORING                |
| 18 | UHB         | AUXILIARY BOILER                               |
| 19 | LAC         | BOILER FEED WATER PUMPS                        |
| 20 | LCN         | CONDENSATE RECIRC. PUMP                        |
| 21 | UHW         | BOILER BLOWDOWN                                |
| 22 | EKC         | FUEL GAS PREHEATER                             |
| 23 | QU          | SAMPLING CONTAINER                             |
| 24 | USV         | LABORATORY CONTAINER                           |
| 25 | UMA/MKA02   | STEAM TURBINE ENCLOSURE & GENERATOR            |
| 26 | MAL         | DRAIN PIT                                      |
| 27 | SCA         | AIR COMPRESSOR SKID                            |
| 28 | PGB         | CLOSED COOLING WATER PUMPS                     |
| 29 | URB         | CLOSED COOLING WATER FIN FAN COOLER            |
| 30 | URX         | SURGE TANK                                     |
| 31 | UBA05       | CCW FIN FAN MOTOR CONTROL CENTER               |
| 32 | MAJ         | VACUUM PUMPS                                   |
| 33 | ULC         | CONDENSATE RETURN TANK                         |
| 34 | LCB         | CONDENSATE EXTRACTION PUMPS                    |
| 35 | URC         | AIR COOLED CONDENSER                           |
| 36 | UBA06       | ACC POWER CONTROL CENTER                       |
| 37 | UBA07       | STEAM TURBINE POWER CONTROL CENTER             |
| 38 | UBA08       | BALANCE OF PLANT POWER CONTROL CENTER          |
| 39 | BFT         | LV TRANSFORMER                                 |
| 40 | XKA         | EMERGENCY DIESEL GENERATOR                     |
| 41 | UGX         | DEMIN. WATER FORWARDING PUMPS                  |
| 42 | UGC         | DEMIN. WATER STORAGE TANK                      |
| 43 | UGD/GCB     | WATER TREATMENT MODULE/MULTI-MEDIA FILTER      |
| 44 | GAJ         | RAW WATER FORWARDING PUMPS                     |
| 45 | UGA/UGF     | RAW/FIRE WATER STORAGE TANK                    |
| 46 | USG         | FIRE WATER PUMPS                               |
| 47 | UBA09       | WATER TREATMENT AREA MCC                       |
| 48 | UTR         | AMMONIA STORAGE/UNLOADING                      |
| 49 | EKE01       | FUEL GAS CONDITIONING/METERING                 |
| 50 | UCA/UST/UYC | ADMIN./CONTROL RM. WAREHOUSE BUILDING          |
| 51 | UYX         | SAFETY SHOWER & EYE WASH                       |
| 52 | UZA01       | ROAD                                           |
| 53 | UZD         | PARKING AREA                                   |
| 54 | UZJ01       | FENCE & GATES                                  |
| 55 | EKH         | FUEL GAS COMPRESSORS (BY OTHERS)               |
| 56 | URX         | FUEL GAS COMPRESSOR FIN FAN COOLER (BY OTHERS) |
| 57 | EKE02       | FUEL GAS MAIN FILTER (BY OTHERS)               |



**CONCEPTUAL**

Origin	Origin No.	Orig. FC
Project: <b>SUMMIT POWER - PALMDALE</b>		PLC/PC: <b>US1327</b>
Drawn	Date	Name
10/11/18	10/11/18	D. STEINBERGER
Checked	Date	Name
10/11/18	10/11/18	A. BENNANI
Approved	Date	Name
10/11/18	10/11/18	K. CHIRWAN
Title: <b>GENERAL ARRANGEMENT FACILITY PLOT PLAN SCC8-5000F 2 X 1 W/AIR COOLED CONDENSER HEAVY DUCT FIRING</b>		Rev. No: <b>A-3363-02</b>
Dept: <b>SIEMENS Energy, Inc.</b>		Rev: <b>02</b>
Disc: <b>ORL PLCI</b>		Version: <b>02</b>
UMLC		Page No: <b>1 of 1</b>
Drawing No: <b>GH99100101</b>		
Drawing File: <b>GH99100101_R2.dgn</b>		
Supervisor: _____		

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## Exhibit 2-A Equipment Dimensions

Equipment/System	Height (ft)	Length East-West (ft)	Depth North-South (ft)	Diameter (ft)
Raw and Fire Water Storage Tank	30	n/a	n/a	50
Demineralized Water Tank	30	n/a	n/a	78
Closed Cooling Water Fin-Fan Coolers	30	55	45	n/a
Fire Pump Module	16	14	33	n/a
Admin/Control Building Warehouse	25	140	48	n/a
Water Treatment Module	14	40	12	n/a
Sampling Container	15	10	18	n/a
Laboratory Container	15	36	12	n/a
STG Power Control Center	17	40	12	n/a
Cycle Chemical Feed Module	10	36	10	n/a
Ammonia Storage (Horizontal Tank)	20	n/a	50	9
HRSO Structure	96	150	48	n/a
HRSO Stack	160	n/a	n/a	22
Combustion Turbine Enclosures	31	45	36	n/a
Combustion Turbine Generator Enclosures	21	25	33	n/a
Combustion Turbine Inlet Air Filters	68	55	51	n/a
CT Lube Oil Skid and Coolers	36	27	11	n/a
GT Generator Step-Up Transformer	30	20	28	n/a
ST Generator Step-Up Transformer	34	28	40	n/a
Emergency Shutdown Generator	17	10	32	n/a
MV Switchgear Module	12	40	15	n/a
BOP Power Control Center	17	40	12	n/a
Air Cooled Condenser	135	350	180	n/a
Switchyard Module				n/a
Steam Turbine Generator	28	24	29	n/a
Steam Turbine Generator Enclosure HP-IP	32	45	28	n/a
LP Steam Turbine - with Crossover Pipe	44	22	20	n/a
Steam Turbine Building (Alternate)	99	99	180	n/a
Startup Frequency Converters	12	24	14	n/a
Generator Circuit Breakers	26			n/a
Auxiliary Boiler	20	38	50	n/a
<u>Fuel Gas Compressor Building</u>	<u>30</u>	<u>80</u>	<u>40</u>	<u>n/a</u>

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF GREGORY  
DARVIN**

---

I, Gregory Darvin, declare as follows:

1. I am presently the owner of Atmospheric Dynamics, Inc.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Air Quality for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Gregory Darvin

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
AIR QUALITY  
OPENING TESTIMONY**

I. Name: Gregory Darwin

II. Purpose:

My testimony addresses the subject of Air Quality associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment (Petition) (08-AFC-9C).

III. Qualifications:

I am presently employed at Atmospheric Dynamics and have been for the past 13 years. I have a Graduate Degree in Atmospheric Science and I have 28 years of experience in air quality meteorology, dispersion model development and application, and air quality consulting.

I prepared the Air Quality, Greenhouse Gas Emissions and Public Health sections of the Petition For Amendment, as well as the post-filing information, data responses, and supplemental filings.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Air Quality, Greenhouse Gas Emissions, and/or Public Health included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Air Quality section of the Final Staff Assessment and I agree with its conclusions and all of the Proposed Conditions of Certification except for the following.

**Page 7.1-9, AQ-SC6**

Staff added a new Condition of Certification **AQ-SC6** which would require the project owner to prepare additional quarterly reports and submit them to the Compliance Project Manager (CPM). This requirement is redundant as the Staff has already incorporated Condition of Certification **AQT-17** verbatim from the Antelope Valley Air Pollution Control District (District) Revised Final Determination of Compliance (RFDOC). **AQT-17** requires that the CPM be provided copies of a similar quarterly report that would contain all of the pertinent information now requested by the new Condition of Certification **AQ-SC6**. Therefore, I request new Condition of Certification **AQ-SC6** be deleted from the amended Final Decision.

**Page 7.1-14, AQT-4 d. i.**

Condition of Certification **AQT-4 d. i.** is copied verbatim from the District's RFDOC. The permit limits for VOC's in the District RFDOC is referenced as 1 ppmvd. The FSA lists the limit at 1.0 ppmvd. I request that Condition of Certification **AQT-4 d. i.** be modified from 1.0 to 1 ppmvd.

**Page 7.1-30, AQAB-6**

The RFDOC lists four subsections to Condition of Certification **AQAB-6**, labeled a through d. The FSA appears to be missing subsection b. of the condition which includes the daily emission limits. Therefore, subsection b (reproduced below) should be added to the condition and subsections b and c renumbered to c and d.

- b. Daily fuel use (to be used for calculating annual (12 month rolling sum) capacity factor;

I believe that with incorporation of the Proposed Conditions of Certification as modified above, the PEP will not result in significant Air Quality impacts and will comply with all applicable Air Quality-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Biological Resources for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
BIOLOGICAL RESOURCES  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Biological Resources associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Biological Resources section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Biological Resources included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Biological Resources section contained in FSA and I agree with the overall conclusions and agreed with all of the Proposed Conditions of Certification except Proposed Condition of Certification **BIO-10**.

Page 7.1-100, BIO-10

Palmdale Energy, LLC proposed modification to Condition of Certification **BIO-10** which requires restoration and revegetation activities. The modification proposed by Palmdale Energy, LLC was intended to allow the construction laydown area to be revegetated to a lower standard than other areas of temporary disturbance since Palmdale Energy, LLC has agreed to provide habitat compensation mitigation lands as if the temporary laydown area were to be permanently disturbed. In other words, if the temporary laydown area must be restored, it follows that habitat compensation mitigation lands should not be based on a permanent disturbance.

Staff and Palmdale Energy, LLC engaged in productive conversations regarding this issue and as Staff relates at Page 4.2-11, the parties agreed that the construction laydown areas could be revegetated to a lower standard than complete restoration. Subsequent to this discussion the Lahontan Regional Water Quality Control Board (Board) submitted a letter requesting the site be treated to minimize soil erosion. The Staff at Page 4.2-11 of the FSA reasoned:

Furthermore, Biology staff has collaborated with Soil and Water staff as well as the Lahontan Regional Water Quality Control Board and all agree that leaving the laydown/parking area unrestored and not re-vegetating it after construction is complete would be a ***water and air quality concern due to high risk of soil erosion.*** (Emphasis added)

Thus, Biology staff does not agree with the project owner's suggested language change to **BIO-10**, nor does staff agree that the project owner should be relieved of the responsibility to re-vegetate the laydown/parking area. Staff recommends that the project owner be held accountable to restore the laydown/parking area with native plant species specified in **BIO-10**, which do not include Joshua trees just native grasses and subshrubs, to prevent soil erosion.

While Staff agrees with applying a lower standard for the construction laydown area, Condition of Certification **BIO-10** has not been modified to



explicitly authorize treatment of the construction laydown area differently than other areas requiring full restoration. Therefore, I propose the following modification to Condition of Certification **BIO-10** to explicitly allow the revegetation with the use of native grasses and subshrubs as requested by Staff and to also include the potential soil erosion measure of gravelling the area.

**BIO-10** The project owner shall provide restoration for impacts to native vegetation communities and develop and implement a Restoration Plan for all areas subject to temporary project disturbance, **except for the temporary construction laydown area which shall be revegetated with native grasses and subshrubs or graveled to minimize soil erosion.** Upon completion of construction, all temporarily disturbed areas shall be revegetated, excluding the road and roadbed. The following measures shall be implemented for the revegetation effort areas not subject to the facility Landscape Plan. These measures will include:

I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Biological Resources impacts and will comply with all applicable Biological Resources-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Cultural Resources for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
CULTURAL RESOURCES  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Cultural Resources associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Cultural Resources section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Cultural Resources included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Cultural Resources section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Cultural Resources impacts and will comply with all applicable Cultural Resource-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Hazardous Materials for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
HAZARDOUS MATERIALS  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Hazardous Materials associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Hazardous Materials section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Hazardous Materials included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Hazardous Materials section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Hazardous Materials impacts and will comply with all applicable Hazardous Materials-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Land Use for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns



**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
LAND USE  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Land Use associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Land Use section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Land Use included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Land Use section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Land Use impacts and will comply with all applicable Land Use-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**


**DECLARATION OF THOMAS  
CAMERON**

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I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Noise and Vibration for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
NOISE AND VIBRATION  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Noise and Vibration associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Noise and Vibration section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Noise and Vibration included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Noise and Vibration section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Noise and Vibration impacts and will comply with all applicable Noise and Vibration-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF GREGORY  
DARVIN**

I, Gregory Darvin, declare as follows:

1. I am presently the owner of Atmospheric Dynamics, Inc.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Public Health for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Gregory Darvin

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
PUBLIC HEALTH  
OPENING TESTIMONY**

I. Name:

Gregory Darwin

II. Purpose:

My testimony addresses the subject of Public Health associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am presently employed at Atmospheric Dynamics and have been for the past 13 years. I have a Graduate Degree in Atmospheric Science and I have 28 years of experience in air quality meteorology, dispersion model development and application, and air quality consulting.

I prepared the Public Health section of the Petition For Amendment, as well as the post-filing information, data responses, and supplemental filings.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Air Quality, Greenhouse Gas Emissions, and/or Public Health included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Public Health section contained in FSA and I agree with the conclusions therein. I further agree the PEP will not result in significant Public Health impacts and will comply with all applicable Public Health-related laws, ordinances, regulations and standards (LORS).



STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

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I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Socioeconomics for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
SOCIOECONOMICS  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Socioeconomics associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Socioeconomics section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Socioeconomics included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Socioeconomics section contained in FSA and I agree with the new Condition of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Socioeconomics impacts and will comply with all applicable Socioeconomics-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Soil and Water Resources for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
SOIL AND WATER RESOURCES  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Soil and Water Resources associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Soil and Water Resources section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Soil and Water Resources included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Soil and Water Resources section contained in FSA and I agree with the Conditions of Certification proposed therein except for Condition of Certification **SOIL&WATER-4**.

**Page 7.1-100, SOIL&WATER-4**

Staff modified Condition of Certification **SOIL&WATER-4** to require a New Water Supply Entitlement Acquisition Agreement and a new Will Serve Letter for the PEP use of potable water. First, it is important to note that the PEP is proposing to use the same source (District 40) and the same quantity (3.6 AFY) as allowed by the Final Decision for the original project. Staff describes at Page 4.9-10 of the FSA its reasoning behind believing that changed conditions justify modifying Condition of Certification **SOIL&WATER-4**.

The AVGB, in which PEP is located, became adjudicated December 15, 2015 (Antelope Valley Groundwater Cases, JCCP No. 4408, Calif. Super and Los Angeles Co.). PEP was not part of the adjudication and has no water right in the basin. District 40 currently does not have sufficient potable water to supply PEP, other than on a temporary basis. Therefore, District 40 has to acquire and import additional water supplies and rely on banked groundwater during dry years to meet demands associated with the level of growth projected for the District 40 service area.

Staff bases its conclusion that PEP was not part of the adjudication on the will serve letter but ignores that PEP has a signed water supply agreement and has paid its fees (see Attachment 1). Palmdale Energy, LLC disagrees with Staff's conclusion that the PEP's water supply was not part of the basin adjudication and further believes that it has a valid water supply agreement with District 40. However, since this disagreement involves interpretation of water law, which the Commission should not be deciding, I have proposed the following compromise language to Condition of Certification **SOIL&WATER-4** which will ensure that the project owner provides proof that it has secured the necessary potable water without necessarily requiring a new specific agreement.

**SOIL&WATER-4:** The project's use of water for project operations shall be potable water from the Los Angeles County Department of Public Works (LACDPW) and tertiary-treated recycled water from the city of Palmdale. Use of recycled water shall comply with CCR Title 22, and Title 17. The project owner shall provide the CPM a copy of an

agreement demonstrating the city of Palmdale is committed to delivery of recycled water.

As a pre-requisite to construction, the project owner shall provide the CPM a copy of the valid ~~New Water Supply Entitlement Acquisition~~ **potable water supply** agreement between the project power and District 40 demonstrating the necessary fees have been paid and ~~Will Serve letter for the potable water supply~~ demonstrating the District 40 is committed to delivery of potable water.

**Verification:** No later than thirty (90) days prior to construction, the project owner shall provide a copy of the executed **valid water supply** ~~New Water Supply Entitlement Acquisition~~ agreement and ~~Will Serve letter~~ for potable water supply from District 40.

No later than thirty (30) days prior to construction, the project owner shall provide a copy of the executed agreement with city of Palmdale for the recycled water supply.

No later than sixty (60) days prior to operation, the project owner shall submit the Engineering Report and Cross Connection inspection report for the recycled water supply to the Lahontan RWQCB, California Department of Public Health (DPH), and CBO. The project owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and California DPH prior to accepting delivery of recycled water

I further agree that with incorporation of the Proposed Conditions of Certification including the modification described above, the PEP will not result in significant Soil and Water Resources impacts and will comply with all applicable Soil and Water Resources-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
CAMERON**

---

I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Traffic and Transportation for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Cameron



**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
TRAFFIC AND TRANSPORTATION  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Traffic and Transportation associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a bachelor of science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Traffic and Transportation section and Staff's Supplemental Testimony. I also assisted in the preparation of the Traffic and Transportation section of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Traffic and Transportation included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Traffic and Transportation section contained in FSA and I agree with the Conditions of Certification proposed therein except for Condition of Certification **TRANS-2**.

Page 7.1-206, TRANS-2

Palmdale Energy, LLC proposed revisions to Condition of Certification **TRANS-2** in its Revised Petition To Amend. Those revisions requested that the cooling tower, clarified water tank, and crystallizer be deleted and replaced with the air cooled condenser. Staff agreed to the revisions proposed but also added several other components to the list of equipment that would require FAA Determinations. At the Preliminary Staff Assessment (PSA0) Workshop Staff explained that the revisions reflect the requirements of Part 77.9 which provides directions for filing Form 7460-1 Notice of Proposed Construction or Alteration. Palmdale Energy, LLC's concern relates to subsection (e) (1) which may exempt some of the structures listed in the condition due to shielding by taller structures. Subsection (e) (1) states:

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature, or by natural terrain, or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

Palmdale Energy, LLC therefore requested in its Final Comments on the PSA the Condition of Certification be modified to include the provision that would allow relief from obtaining a Determination of No Hazard from the FAA if the structure is exempt due to subsection (e) (1). Staff responded in its FSA that it believes that Subsection (e) (1). of the FAA regulations would not be applicable to any of the PEP structures and future filings. Ultimately it is not Staff's opinion that will control as FAA is implementing federal law. If FAA refuses to grant even one of the Determinations required by the Condition of Certification because the FAA believes that Subsection (e) (1) exempts certain structures, the project owner will be unable to comply with the Condition of Certification. Therefore, I simply request that the Condition of Certification be modified as follows to allow for FAA to determine if the exemption applies to any of the structures.

**TRANS-2** The project owner shall obtain Determinations of No Hazard to Navigable Airspace from the Federal Aviation Administration (FAA) for U.S. Air Force Plant 42 regarding the project's transmission towers, HRSG structure, HRSG stack, combustion turbine enclosures, combustion turbine air inlet filters, combustion turbine oil skid and coolers, steam turbine generator step-up transformer, air cooled condenser, steam turbine generator enclosure, low pressure steam turbine, steam turbine building, and construction crane that would penetrate the Plant 42's airspace, **unless the FAA determines that any of these structures are exempt from the requirements for obtaining a Determination of No Hazard to Navigable Airspace pursuant to Title 14, CFR, Part 77, Section 77.9 (e) (1).**

**Verification:** At least 90 days prior to the construction, the project owner shall provide the CPM copies of the FAA Determinations of No Hazard to Navigable Airspace regarding the project structures identified above **or FAA's Determination that a structure is exempt for the requirements for obtaining a Determination of No Hazard to Navigable Airspace** and the project owner must comply with specific recommendations contained in the FAA determinations

I further agree that with incorporation of the Proposed Conditions of Certification including the modification described above, the PEP will not result in significant Traffic and Transportation impacts and will comply with all applicable Traffic and Transportation-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

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I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Transmission Line Safety and Nuisance for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
TRANSMISSION LINE SAFETY AND NUISANCE  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Transmission Line Safety and Nuisance associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Transmission Line Safety and Nuisance section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Transmission Line Safety and Nuisance included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Transmission Line Safety and Nuisance section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Transmission Line Safety and Nuisance impacts and will comply with all applicable Transmission Line Safety and Nuisance-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Visual Resources for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
VISUAL RESOURCES  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Visual Resources associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Visual Resources section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Visual Resources included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.



V. Opinion and Conclusions

I have reviewed the Visual Resources section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Visual Resources impacts and will comply with all applicable Visual Resources-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Waste Management for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
WASTE MANAGEMENT  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Waste Management associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Waste Management section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Waste Management included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Waste Management section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Waste Management impacts and will comply with all applicable Waste Management-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Worker Safety and Fire Protection for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
WORKER SAFETY AND FIRE PROTECTION  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Worker Safety and Fire Protection associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Worker Safety and Fire Protection section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Worker Safety and Fire Protection included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Worker Safety and Fire Protection section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Worker Safety and Fire Protection impacts and will comply with all applicable Worker Safety and Fire Protection-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
CAMERON**

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I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Facility Design for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Cameron



**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
FACILITY DESIGN  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Facility Design associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Facility Design section and assisted in the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Facility Design included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Facility Design section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will comply with all applicable Facility Design-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

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I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Geology and Paleontology for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
GEOLOGY AND PALEONTOLOGY  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Geology and Paleontology associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Geology and Paleontology section and supervised the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Geology and Paleontology included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Geology and Paleontology section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will not result in significant Geology and Paleontology impacts and will comply with all applicable Geology and Paleontology-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**


**DECLARATION OF THOMAS  
CAMERON**

---

I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Power Plant Efficiency for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
POWER PLANT EFFICIENCY  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Power Plant Efficiency associated with the operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Power Plant Efficiency section and assisted in the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Power Plant Efficiency included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Power Plant Efficiency section contained in FSA and I agree with its conclusions that the PEP will comply with all applicable Power Plant Efficiency-related laws, ordinances, regulations and standards (LORS).



STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**


**DECLARATION OF THOMAS  
CAMERON**

---

I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Power Plant Reliability for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
POWER PLANT RELIABILITY  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Power Plant Reliability associated with the operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Power Plant Reliability section and assisted in the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Power Plant Reliability included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Power Plant Reliability section contained in FSA and I agree with its conclusions that the PEP will comply with all applicable Power Plant Reliability-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

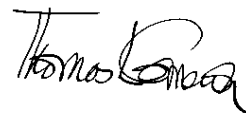
**DECLARATION OF THOMAS  
CAMERON**

---

I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Transmission System Engineering for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



---

Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
TRANSMISSION SYSTEM ENGINEERING  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Transmission System Engineering associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Transmission System Engineering section and assisted in the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Transmission System Engineering included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.

V. Opinion and Conclusions

I have reviewed the Transmission System Engineering section contained in FSA and I agree with the Conditions of Certification proposed therein. I further agree that with incorporation of the Proposed Conditions of Certification, the PEP will comply with all applicable Transmission System Engineering-related laws, ordinances, regulations and standards (LORS).

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

**DECLARATION OF THOMAS  
JOHNS**

---

I, Thomas Johns, declare as follows:

1. I am currently consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Alternatives for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Johns

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
ALTERNATIVES  
OPENING TESTIMONY**

I. Name:

Thomas Johns

II. Purpose:

My testimony addresses the subject of Alternatives associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC leading the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with 29 years' experience in the utility industry. I have managed the development, environmental permitting and interconnection processes for energy projects throughout the country. I have a BS in accounting degree from Montana State University and a MS in Business degree from Gonzaga University.

I have reviewed the Final Staff Assessment (FSA) Alternatives section and assisted in the preparation of the Alternative and Project Objective sections of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the Exhibits labeled Alternatives included in Palmdale Energy, LLC's Exhibit List which is attached to its PreHearing Conference Statement.



V. Opinion and Conclusions

I have reviewed the Alternatives section contained in FSA and I agree that the section appropriately relies on the evaluation performed for the original project and fairly added energy storage technology as an additional alternative to be considered for the PEP. I also agree with the FSA conclusions that: alternative technologies are not feasible; previously analyzed alternatives and alternatives sites are still infeasible; and no new information since the original Final Decision exists that would change the previous findings that no alternative would substantially reduce one or more significant effect of the PEP.

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALMDALE ENERGY PROJECT**

**DOCKET NO. 08-AFC-09C**

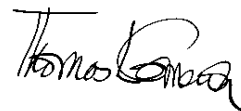
**DECLARATION OF THOMAS  
CAMERON**

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I, Thomas Cameron, declare as follows:

1. I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached testimony relating to Compliance Monitoring for the Petition for Amendment for the Palmdale Energy Project (California Energy Commission Docket Number 08-AFC-09C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on January 5, 2017.



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Thomas Cameron

**PALMDALE ENERGY, LLC  
PALMDALE ENERGY PROJECT  
COMPLIANCE MONITORING  
OPENING TESTIMONY**

I. Name:

Thomas Cameron

II. Purpose:

My testimony addresses the subject of Compliance Monitoring associated with the construction and operation of the Palmdale Energy Project (PEP) as described in the Petition For Amendment of the Final Decision (Petition) (08-AFC-9C).

III. Qualifications:

I am currently a consultant to Palmdale Energy, LLC supporting the development of the Palmdale Energy Project. I am a developer of utility scale energy projects with over twenty five years of experience. I have managed the development and interconnection processes for energy projects throughout the country. I have a Bachelor of Science degree in Engineering Physics from the University of Maine.

I have reviewed the Final Staff Assessment (FSA) Compliance Monitoring section and assisted in the preparation of the Petition.

Detailed descriptions of my qualifications are presented in the resume which is included in Attachment A to this Opening Testimony package.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

V. Opinion and Conclusions

I have reviewed the Compliance Monitoring section contained in FSA and I agree with the Conditions of Certification proposed therein.

Attachment A  
Resumes





**Resume of Thomas L. Cameron**

6/95 – 4/97      **Project Manager**      Siemens Power Corporation  
                         **Baytown Cogeneration Project**      Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning of a Siemens V84.2 gas turbine and heat recovery steam generator scope of supply for the 110 MW Exxon/Baytown Cogeneration Project. Contract value was approximately \$30,000,000. The Project was completed within budget and on schedule.

8/95 – 6/96      **Project Manager**      Siemens Power Corporation  
                         **OPPD Sarpy County CT #3 Project**      Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for the combustion turbine scope of supply for the 105 MW OPPD Sarpy County CT #3 Project. The project was constructed as a simple cycle peaking application and utilized a Siemens V84.2 gas turbine. Contract value was approximately \$26,000,000.

8/93 – 10/95      **Project Manager**      Siemens Power Corporation  
                         **Smud/Campbell Soup Project**      Milwaukee, WI

EPC Consortium Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for a Siemens V84.2 gas turbine, Siemens steam turbine and Heat Recovery Steam Generator scope of supply for the 160 MW SMUD/Campbell Soup Cogeneration Project. Supported the project throughout the development activities, initial design phases and consortium partner negotiations until the project was delayed for one year. Contract value was approximately \$100,000,000.

10/92 – 10/94      **Project Manager**      Siemens Power Corporation  
                         **Brooklyn Navy Yard Project**      Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for the gas turbine and steam turbine scope of supply for the 270 MW Brooklyn Navy Yard Combined Cycle/Cogeneration Project. Two (2) Siemens' V84.2 gas turbines and two (2) Siemens "industrial" steam turbines were utilized. Contract value was approximately \$75,000,000. Project manager throughout the project development activities and the 1<sup>st</sup> phase of the project design until it was delayed for one year.

6/90 – 9/92      **Consultant**      ABB Combustion Engineering  
                         **Nuclear Materials Licensing**      Windsor, Ct.

Responsibilities included all licensing matters related to the operation of ABB/CE's Hematite Nuclear Fuel Manufacturing Facility. Duties include support of day to day operations, preparation of license amendments related to changes in the facility, interpretation of NRC regulations, interface with the NRC on licensing matters, and various special projects.

## Resume of Thomas L. Cameron

3/89 – 5/90      **Project Manager**      International Systems Inc  
                         **Cascade Paper Cogeneration Project**      Avon, Ct.

EPC Project Manager responsible for design, construction, and startup of a 20 MW cogeneration facility in Quebec, Canada. Tasks included customer and vendor coordination, customer and contractor commercial negotiations, monitoring of project schedule and budget, hiring and supervision of manpower, site construction management and startup coordination. The project utilized Turbo Power Marine aero-derivative gas turbines. The project was completed on time and within budget. Contract value was approximately \$13,000,000.

5/87 – 2/89      **Principle Engineer**      ABB Combustion Engineering  
                         **Nuclear Materials Licensing**      Windsor, Ct.

Responsibilities included review, resolution, and as appropriate, NRC interface on licensing issues associated with CE's standardized plants in operation at Palo Verde, Korea Nuclear Units 11 & 12 and the Advanced Light Water Reactor Development programs sponsored by the U.S. Dept. of Energy and EPRI.

6/80 – 4/87      **Lead Engineer/Supervisor**      Combustion Engineering  
                              Windsor, Ct.

Supervisor - Process Instrumentation & Controls responsible for technical and administrative supervision of six (6) engineers in the design, procurement, and implementation of process instrumentation and controls for nuclear power applications.

Lead/Project Engineer - Responsible for design & construction of controls and cabinets for a full scope control room simulator. Duties included coordination of vendor, customer, & internal engineering interfaces, manufacturing coordination and control, technical supervision of engineering disciplines, and project cost/schedule control.

Corrective Actions Lead Engineer - Responsible for coordination of engineering, licensing, commercial, and legal reviews to ensure that all issues which could affect power plant safety, reliability and availability are addressed through feedback to utility customers.

Engineer – Responsible for the design and development of a remote radiological monitoring system for post accident monitoring at a nuclear facility. Duties included design, cost & schedule control, testing, installation technical direction, and training of operators.

6/79 – 5/80      **Test Engineer**      United Technologies, Inc.  
                              East Hartford, Ct.

Responsibilities included the technical supervision of technicians, operation and maintenance of 2 steady state data acquisition systems, and instrumentation design responsibilities for gas turbine "altitude" test facilities.

Education:      BS – Engineering Physics, University of Maine, 1978





### *Summary of Experience*

Mr. Darvin has specialized in the meteorological aspects of air quality issues for the last sixteen years. He has extensive experience in air quality management, dispersion modeling, meteorological modeling, greenhouse gas emission inventories, monitoring, major source permitting, complex terrain model development and implementation, emission inventory and health risk assessments. His experience spans more than 25 different states and several countries.

He has been actively involved with recent PSD permits for many large-scale solid fuel and gaseous fuel projects across the United States. Mr. Darvin has performed the following in support of PSD applications for utilities: baseline air quality and air quality modeling analyses (including preparation and negotiation of the modeling protocol), prepared the PSD and air permit regulatory applicability analyses, managed the preparation of the air quality emissions inventory, and assisted with the Best Available Control Technology (BACT) evaluations.

Specific project experience includes emissions calculations, modeling of impacts, evaluation of regulatory applicability and compliance, New Source Review (NSR) and Prevention of Significant Deterioration (PSD) permitting, and minor source permitting. He has used and is thoroughly familiar with a number of air quality models, including AERMOD, ISC3, CALPUFF, CALMET, COMPLEX I AND II, IGM, FDM, RTDM, CTSCREEN, CTDMPPLUS, UAM, DEGADIS, SPILLS, VISCREEN, PLUVUEII, MESOPUFF, INPUFF, BLP, PAL, CAMEO, CALINE4, OCD5, RAM, TRACE, MM5, SLAB, and the Paris Airshed Model. These models have been used in scientific and development settings as well as in regulatory settings.

### *Education*

M.S. Atmospheric Science, San Francisco State University, 1993

B.A. Physical Geography/Meteorology, University of California, Santa Barbara, 1985.

### *Select Project Experience*

A representative selection of Mr. Darvin's projects is included below.

*Western GeoPower ATC (June 2009-September 2009).* Provided air dispersion modeling assessments for a 39 MW geothermal power plant, located in the Geysers area. Project modeling included normal and upset scenarios for H<sub>2</sub>S impact analyses.

*Caithness Blythe II AFC and PSD Permit Applications (June 2009-Present).* Project manager and lead modeler for the preparation of the air quality permits for a 600 MW combined cycle power plant in Blythe, California. Project included Class I impact assessments, BACT and secondary impact assessments.



***Select Project Experience (continued)***

*Calpine Geysers (Ongoing).* Air quality modeling in support of ongoing permitting for both criteria pollutants and toxics. Performed wind field analyses in support of upgrading the Geysers Air Monitoring Program for use with AERMOD.

*British Petroleum Carson Refinery AFC and PSD Permit Applications (2008-Present)* Air Quality Project Manager and lead modeler for preparation of the permit applications for expansion of the refinery cogeneration facility. The project includes regulatory review, offset acquisition, Class I impact assessments, and BACT.

*Mountainview Power Plant – SCE (2005 to Present).* Project Manager for preparing an air quality permit modification related to commissioning activities and plant startup/shutdown. The project includes preparing a CEMS certification protocol, siting a meteorological tower, and ongoing compliance and regulatory consulting.

*Roseville Electric Project AFC, City of Roseville, Ca. (January 2003 to Present).* Air Quality Project Manager for air quality analysis related to a proposed new 200 MW natural gas fired power plant. Analysis included evaluation of CEQA, Class I impacts, visibility impacts, complex terrain, and cooling tower plume modeling.

*Pico Power Project AFC, City of Santa Clara. (January 2002 to November 2004).* Air Quality Project Manager and lead air quality modeler for permitting a 180 MW power plant in the City of Santa Clara, Ca. Prepared and negotiated air quality permit with BAAQMD and prepared air section(s) of AFC for the California Energy Commission.

*Russell City Energy Center AFC, Calpine (January 1999 to November 2002, September 2006-Present).* Air Quality Project Manager for obtaining PSD permit and AFC for a large natural gas fired power plant, located near Hayward, Ca. Project required detailed emission calculations, air quality modeling, combined impact assessments, BACT analysis and demonstration, Title IV compliance, and Title V compliance issues.

*Metcalf Energy Center AFC, Calpine. (1998 to 2003)* Lead air quality modeler for modeling a large natural gas fired power plant, located near San Jose, Ca. Project included CEQA, using refined modeling techniques to determine nitrogen deposition impacts, Class I analysis, and downwash analysis.

*Otay Mesa Generating AFC, Calpine. (1999 to 2004).* Lead Meteorologist for permitting a combined cycle power plant, located near San Diego, Ca. Project included Class I impacts, a nitrogen deposition impact assessment, and a downwash analysis in complex terrain. Modeling was used to prepare PSD permit application as well as the AFC application which was submitted to CEC.

*CalEnergy Blackrock Geothermal Expansion (2007-Present).* Lead Meteorologist for permitting three geothermal power plants in the Salton Sea area. Project was in support of a CEC license as well as local District Permits.



***Select Project Experience (continued)***

*East Altamont Energy Center AFC (2000-2002)* Lead Meteorologist for permitting large power plant, located near Tracy, Ca. Project included meteorological data set assessments, criteria pollutant and toxics impacts analysis, and construction impact modeling. Modeling was used to prepare PSD permit application as well as the AFC application for submittal to the CEC.

*San Joaquin Energy Center AFC (2001-2002)* Lead Meteorologist for permitting large power plant, located near the town of San Joaquin in the San Joaquin Valley. Project included preparing modeling assessments for toxics and criteria pollutants, meteorological data set assessments, construction impacts, and plume visibility assessments for the CEC and local air agency.

*Prevention of Significant Deterioration (PSD) Permit Modification, Kettle Falls Generating Station, Avista Corporation, Kettle Falls Washington.* Prepared a PSD application for modification to the Kettle Falls Generating Station, a wood-waste fired generating facility to address emission increases resulting from a capacity increase modification at the facility. Air quality modeling analyses were required to assess compliance with ambient air quality standards and PSD increments. A toxic air pollutant evaluation was also prepared.

*PSD Permitting and EIS For 2000-MW Coal-Fired Power Plant, Sierra Pacific Resources, Nevada.* Managed the preparation of a Prevention of Significant Deterioration (PSD) permit application for a 2000-megawatt coal-fired power plant in northeastern Nevada proposed by Sierra Pacific Resources. Evaluation of PSD increments involved extensive air quality modeling for regions with complex terrain. Detailed air quality analyses were performed to address complex issues including: long-range transport of pollutants and subsequent effects on acid deposition, effects of plant emissions on visibility in nearby and distant Class I areas, evaluation of pollutant buildup during stagnation conditions and its effect on visibility, dust emissions from the construction and operation of the power plant, and PSD increments. As part of the state's permitting requirements, an evaluation of air toxics was performed.

*PSD Permitting for Rinker Materials Cement Kiln in Brooksville, Florida.* Mr. Darvin performed the baseline air quality and air quality modeling analyses, prepared the PSD and air permit regulatory applicability analyses, managed the preparation of the air quality emissions inventory and assisted with the BACT evaluation. The project fuel sources included coal, oil, and natural gas.



***Select Project Experience (continued)***

*Air Quality Permitting for an Ammonia/Urea Plant, Btu Nitrogen Company, Wallula, Washington.* Prepared a Notice of Construction application for the proposed Btu Nitrogen Plant near Wallula, Washington which included a 600 ton per day ammonia plant and 1,000 ton per day urea fertilizer plant. The facility was to be located in a PM<sub>10</sub> nonattainment area. Air quality modeling was used to demonstrate compliance with PM<sub>10</sub> requirements and air quality standards for criteria and toxic air pollutants. Additionally, Best Available Control Technology analyses were prepared for both criteria and toxic air pollutants.

*Power Generation Facility – 1250 MW Combined-Cycle, PSD Air Quality Permitting, Kootenai Generation LLC, Rathdrum, Idaho.* Managed preparation of a PSD permit application for a proposed 1,250 MW gas-fired combined-cycle turbine power generation facility to be located in Rathdrum, Idaho. Evaluation of local and regional air quality impacts were assessed with the ISCST3 model and CTSCREEN model for impacts in complex terrain. Potential impacts on regional haze and acid deposition on distant federal Class I areas were evaluated with the CALPUFF modeling system. Other air quality evaluations required for the PSD permit application include evaluation of impacts from toxic air pollutants and evaluation of Best Available Control Technology (BACT).

*Clean Fuels Refinery Modification, Chevron, Los Angeles, California.* Lead air quality modeler for preparation of an Environmental Impact Report (EIR) and New Source Review permit for a large refinery modification in Los Angeles to support the Clean Fuels Program. Project also included toxic emissions calculations and preparation of a Health Risk Assessment.

*Prevention of Significant Deterioration - Calpine Rocky Mountain Energy Center.* Project manager for preparing PSD application for a 620 MW power plant, located near Hudson Colorado. Project required completion of a PSD permit application, air quality impact modeling analysis in both near and distant from the source, BACT demonstration, and assessment of Class I area impacts. Project was deemed complete by agency in less than 4 weeks.

*Arctic Ocean Permitting, Arco Alaska.* Task Leader and lead modeler for the first OCS permit ever submitted to the USEPA. Permit was for several off-shore oil exploration drilling platforms in the Arctic Ocean off Alaska. Project involved use of OCD to calculate impacts from exploratory drilling rig and support vessels. Impacts at ANWR were also assessed.



***Select Project Experience (continued)***

*Mesoscale Complex Terrain Model Development, Italian Government and Alyeska.* Developed a mesoscale complex terrain wind field model to determine impacts of topographically induced winds on a large man-made lake in the Italian Alps. This model has also been used to diagnose trajectories of potential oil spills in Alaskan waters.

*Lead Dispersion and Deposition Study, ASARCO, Leadville, Colorado.* Lead scientist for assessing potential deposition of lead from smelting operations over a 130-year period. Results of emissions calculations, modeling and deposition were used to develop a soil sampling program and subsequent cleanup criteria.

# Thomas Johns

## EDUCATION

M.S. Business – Taxation, Gonzaga University - 1985

B.S. Business - Accounting, Montana State University - 1981

Licensed CPA – Montana License # 2094

## PROFESSIONAL EMPLOYMENT

December 2016

Present

### **CONSULTANT**

Providing services to the Palmdale Energy Project a 700 MW natural combined cycle plant in Palmdale California.

November 2010

December 2016

### **VICE PRESIDENT PROJECT DEVELOPMENT, SUMMIT POWER GROUP**

Responsible development of natural gas and renewable projects including carbon capture projects for enhanced oil recovery. Project Manager for the Palmdale Energy Project a 700 MW natural combined cycle plant in Palmdale California.

August 2003

November 2010

### **SENIOR VICE PRESIDENT DEVELOPMENT, SITHE GLOBAL POWER**

Responsible for project development and business development activities including the development of the Desert Rock Power Project, a 1,500 MW coal fired plant in New Mexico, the Toquop Energy Project a 700 MW natural gas fired plant in Nevada, the Flat Top Mesa Project a 100 MW PV solar project southern Nevada and the Navajo Transmission Project a 400 mile 500 kV independent transmission project. Extensive contracting experience including power purchase agreements, fuel purchase agreements and joint venture agreements. Significant experience in complex permitting issues including the FERC interconnection process, NEPA, Section 7, Clean Water Act and air permitting issues. Significant experience in project identification, screening and due diligence.

May 2002

March 2003

### **VICE PRESIDENT WEST ORIGATION, TXU ENERGY**

Hired to lead the start-up and management of TXU's WECC origination and development business. This business focus included asset acquisitions, gas and wholesale electric origination and structured transactions. Assisted in the start-up of the western trading desk including the development of asset pricing models and forward price curve methodology. Developed successful bid and led due diligence team to acquire a 600 MW CCCT gas plant in the desert southwest. Due to financial problems at a European subsidiary TXU exited US markets other than ERCOT in January 2003.

January 2000

May 2002

### **CFO AND VP BUSINESS DEVELOPMENT, WORLD WIDE PACKETS**

One of five executives to successfully start World Wide Packets, a start-up company which designed and manufactured carrier Ethernet products and solutions. Member of the six member executive team reporting to CEO. Developed the business plan and raised \$64 million dollars in two rounds of venture funding. Grew the company from 12 to 195 employees in less than 18 months. Responsibilities included, venture funding, financial management and management of business development and legal functions. Responsible for monthly reporting of all business metrics to the Board. Managed a team of six business development employees responsible for third party partnerships and channel sales in Asia and Latin America. World Wide Packets was acquired by Ciena Corporation.

March 1997  
January 2000

**VICE PRESIDENT TRADING, AVISTA ENERGY**

Senior Trading Officer responsible for the concept and successful start-up of Avista Energy (Washington Water Power's non-regulated trading subsidiary) reporting to the President. Recruited senior trading and risk management employees. Reasonable for the development of trading and risk management policies. Responsible for the supervision and of a nation-wide electric and natural gas trading operation, managing team of over 50 employees in Spokane and Houston. Avista Energy was profitable every quarter and exceeded annual profitability targets while under my leadership.

May 1994  
to March 1997

**WHOLESALE MARKETING EXECUTIVE, WASHINGTON WATER POWER**

Managed WWP's Origination Team reporting to the Sr. Vice President Power Supply. Responsible for WWP's Origination and Structuring efforts, managing a team of 12 origination employees. The team grew WWP's wholesale business margins over 50 percent per year over a 3 year period. The team's gross margin contribution in 1996 exceed \$50 million dollars. Responsible for oversight of WWP's power supply P&L and monthly reporting. Developed the business plan for WWP's non-regulated trading and marketing business and received Board approval for Avista Energy in January 1997 with the business becoming operational in July 1997.

November 1990  
to April 1994

**SR. POWER RESOURCE ANALYST, WASHINGTON WATER POWER.**

Responsible for management of WWP's long term power contracts, power supply budget, analysis of load & generation requirements and FERC policy issues. Developed WWP's FERC open-access tariff and market based rates tariff. Developed planning methodology and tools for the modeling of hourly capacity and energy requirements to support resource planning and the Integrated Resource Plan. Performed studies to support regulatory issues and the redevelopment of WWP's hydroelectric facilities. Responsible for oversight of BPA transmission policy and regional power supply and transmission issues.

December 1985  
to November 1990

**SENIOR AUDITOR, WASHINGTON WATER POWER**

Responsible for supervising operational, financial and contract audits for WWP and its' subsidiaries. Developed WWP's annual audit plan approved by the Board Audit Committee.

January 1982  
to December 1984

**GAS ACCOUNTANT, SHELL OIL COMPANY**

Responsible for accounting and contract administration of gas sales and joint venture contracts.