From:	Hingtgen, Robert J
To:	"Asha Bleier"
Subject:	3910 120005, Soitec Solar Development
Date:	Thursday, December 20, 2012 2:16:14 PM
Attachments:	ArmyCorp-12142012.pdf Caltrans-12142012.pdf Soitec Solar Projects PEIR Tisdale comments 12-18-12.pdf DrSamMilham-12132012.pdf NAHC-12182012.pdf SDArchSoc-12182012.pdf USFWS-12172012.pdf

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Asha,

Attached are the NOP comments received to date. I'll try to send whatever comes in on a weekly basis.

Thanks,

Robert Hingtgen, Planner III
Planning and Development Services
5510 Overland Avenue, 3rd Floor
San Diego, CA 92123
Tel - (858) 694-3712
email - robert.hingtgen@sdcounty.ca.gov

DEPARTMENT OF TRANSPORTATION
DISTRICT 11, DIVISION OF PLANNING
4050 TAYLOR ST, M.S. 240
SAN DIEGO, CA 92110
PHONE (619) 688-6960
FAX (619) 688-4299
TTY 711
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December 11, 2012

11-SD-8
PM 67.23
Soitec Solar Development
NOP DEIR

Mr. Robert Hingtgen
County of San Diego
5510 Overland Avenue, Suite 110
San Diego, California 92123

Dear Mr. Hingtgen:

The California Department of Transportation (Caltrans) received a copy of the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Soitec Solar Development located near Interstate 8 (I-8). Caltrans has the following comments:

Utility Encroachment:

Please refer to Caltrans Encroachment Permits Manual (http://www.dot.ca.gov/hq/traffops/developserv/permits/encroachment_permits_manual/index.html) for guidance on utility encroachment. The following information is contained in Chapter 600, Table 6.7 (page 6-35) of the Encroachment Permit Manual. Line supports for overhead lines crossing freeways must comply with these requirements, they:

1. Should have a minimum lateral clearance of 30' from the edge of a through lane and 30' from the edge of a ramp lane, when possible.

2. Shall be located outside the right-of-way (R/W) or between the R/W line and access control line if different. Any other placement must be approved by the Division of Design, Chief.

3. Should not be permitted in medians.

4. Should not be permitted on cut or fill slopes.

5. Shall not impair sight distances.

6. Shall be compatible with access requirements.

Traffic:

Please refer to Caltrans Encroachment Permits Manual for guidance on Traffic Control. The following information is contained in Appendix E (page E-42) of the Encroachment Permit Manual. For placement of aerial lines, installation or removal of overhead conductors crossing a freeway requires traffic control by the California Highway Patrol (CHP) and usually occur on weekend mornings. The CHP can perform a rolling break in traffic on most highways to allow up to a five-minute clearing. These breaks are adequate for simple cable installation. Utility personnel carry the conductors across the freeway lanes and hoist them into place on the opposite side of the freeway. On larger conductor crossings such as transmission lines, 1" or greater in diameter, districts may determine that safety nets are needed to prevent transmission lines from falling on traffic during cabling installations. Temporary safety-net support poles are placed at protected locations outside shoulders and in medians. If locations for temporary supports are not available, the utility company may use K-rail and sand barrel crash cushions. After rope nets are strung during CHP traffic breaks other work is then allowed to proceed. Placement of the aerial line may be by helicopter.

Any work performed within Caltrans R/W must provide an approved final environmental document including the California Environmental Quality Act (CEQA) determination addressing any environmental impacts within the Caltrans' R/W, and any corresponding technical studies. If these materials are not included with the encroachment permit application, the applicant will be required to acquire and provide these to Caltrans before the permit application will be accepted. Identification of avoidance and/or mitigation measures will be a condition of the encroachment permit approval as well as procurement of any necessary regulatory and resource agency permits

Additional information regarding encroachment permits may be obtained by contacting the Caltrans Permits Office at (619) 688-6158. Early coordination with Caltrans is strongly advised for all encroachment permits.

If you have any questions on the comments Caltrans has provided, please contact Roy Abboud of the Development Review Branch at (619) 688-6968.

Sincerely,

JACOB M. ARMSTRONG, Chief
Development Review Branch

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

December 14, 2012

Mr. Robert Hingtgen, Project Planner
County of San Diego Planning & Development Services
5510 Overland Avenue, Suite 110
San Diego, CA 92123

Re: SCH#2012121018 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the **"Soitec Solar Project Environmental Impact Report (LanWest, LanEast, Rugged Solar and Tierra Del Sol);"** located in the Mountain Empire Planning Area including the Community of Boulevard; eastern San Diego County, California

Dear Mr. Hingtgen:

The California Native American Heritage Commission (NAHC) is the State of California 'trustee agency' for the preservation and protection of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604).

This letter includes state and federal statutes relating to Native American historic properties or resources of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendment s effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. The NAHC advises the Lead Agency to request a Sacred Lands File search of the NAHC if one has not been done for the 'area of potential effect' or APE previously. This area is known to the NAHC to be culturally sensitive.

The NAHC "Sacred Sites,' as defined by the Native American Heritage Commission and the California Legislature in California Public Resources Code §§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We strongly urge that you make contact with the list of Native American Contacts on the attached list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Pursuant to CA Public Resources Code § 5097.95, the NAHC requests cooperation from other public agencies in order that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties, including archaeological studies. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and California Public Resources Code Section 21083.2 (Archaeological Resources) that requires documentation, data recovery of cultural resources, construction to avoid sites and the possible use of covenant easements to protect sites.

Furthermore, the NAHC if the proposed project is under the jurisdiction of the statutes and regulations of the National Environmental Policy Act (e.g. NEPA; 42 U.S.C. 4321-43351). Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity.

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for inadvertent discovery of human remains mandate the processes to be followed in the event of a discovery of human remains in a project location other than a 'dedicated cemetery'.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

Finally, when Native American cultural sites and/or Native American burial sites are prevalent within the project site, the NAHC recommends 'avoidance' of the site as referenced by CEQA Guidelines Section 15370(a).

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

Native American Contacts
San Diego County
December 14, 2012

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road Diegueno
Lakeside , CA 92040
sue@barona-nsn.gov
(619) 443-6612
619-443-0681

Viejas Band of Kumeyaay Indians
Anthony R. Pico, Chairperson
PO Box 908 Diegueno/Kumeyaay
Alpine , CA 91903
jrothauff@viejas-nsn.gov
(619) 445-3810
(619) 445-5337 Fax

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
PO Box 1120 Diegueno/Kumeyaay
Boulevard , CA 91905
gparada@lapostacasino.
(619) 478-2113
619-478-2125

Kumeyaay Cultural Historic Committee
Ron Christman
56 Viejas Grade Road Diegueno/Kumeyaay
Alpine , CA 92001
(619) 445-0385

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
PO Box 365 Diegueno
Valley Center, CA 92082
allenl@sanpasqualband.com
(760) 749-3200
(760) 749-3876 Fax

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 Diegueno/Kumeyaay
Campo , CA 91906
chairgoff@aol.com
(619) 478-9046
(619) 478-5818 Fax

Sycuan Band of the Kumeyaay Nation
Daniel Tucker, Chairperson
5459 Sycuan Road Diegueno/Kumeyaay
El Cajon , CA 92019
ssilva@sycuan-nsn.gov
619 445-2613
619 445-1927 Fax

Jamul Indian Village
Raymond Hunter, Chairperson
P.O. Box 612 Diegueno/Kumeyaay
Jamul , CA 91935
jamulrez@sctdv.net
(619) 669-4785
(619) 669-48178 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2012121018; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Soitec Soar Project; located in eastern San Diego County, California.

Native American Contacts
San Diego County
December 14, 2012

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas
P.O. Box 775 Diegueno -
Pine Valley , CA 91962
(619) 709-4207

Manzanita Band of the Kumeyaay Nation
Leroy J. Elliott, Chairperson
P.O. Box 1302 Diegueno/Kumeyaay
Boulevard , CA 91905
ljbirdsinger@aol.com
(619) 766-4930
(619) 766-4957 - FAX

Kumeyaay Cultural Repatriation Committee
Steve Banegas, Spokesperson
1095 Barona Road Diegueno/Kumeyaay
Lakeside , CA 92040
sbenegas50@gmail.com
(619) 742-5587
(619) 443-0681 FAX

Inter-Tribal Cultural Resource Protection Council
Frank Brown, Coordinator
240 Brown Road Diegueno/Kumeyaay
Alpine , CA 91901
frankbrown6928@gmail.com
(619) 884-6437

Ewiiaapaayp Tribal Office
Will Micklin, Executive Director
4054 Willows Road Diegueno/Kumeyaay
Alpine , CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

Kumeyaay Cultural Repatriation Committee
Bernice Paipa, Vice Spokesperson
1095 Barona Road Diegueno/Kumeyaay
Lakeside , CA 92040
(619) 478-2113
(KCRC is a Colation of 12
Kumeyaay Governments

Ipai Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 Diegueno/Kumeyaay
Santa Ysabel, CA 92070
cjlinton73@aol.com
(760) 803-5694
cjlinton73@aol.com

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2012121018; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Soitec Soar Project; located in eastern San Diego County, California.

San Diego County Archaeological Society, Inc.

Environmental Review Committee

15 December 2012

To: Mr. Robert Hingtgen
Department of Planning and Development Services
County of San Diego
5510 Overland Avenue, Suite 110
San Diego, California 92123

Subject: Notice of Preparation of a Draft Environmental Impact Report
Soitec Solar Development Program
GPA 12-010, MUP 12-010, REZ 12-005, MUP 12-007, MUP 12-002,
Log No. 3910-12-005

Dear Mr. Hingtgen:

Thank you for the Notice of Preparation for the subject project, received by this Society last week.

We are pleased to note the inclusion of cultural resources in the list of subject areas to be addressed in the DEIR, and look forward to reviewing it during the upcoming public comment period. To that end, please include us in the distribution of the DEIR, and also provide us with a copy of the cultural resources technical report(s).

SDCAS appreciates being included in the County's environmental review process for this project.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: SDCAS President
File

P.O. Box 81106 San Diego, CA 92138-1106 (858) 538-0935

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

DEC 17 2012

In Reply Refer To:
FWS-SD-13B0073-13TA0096

Mr. Robert Hingtgen
County of San Diego
Department of Planning and Land Use
5510 Overland Avenue, Suite 110
San Diego, California 92123

Subject: Notice of Preparation of an Environmental Impact Report for the Soitec Solar Development Program, Unincorporated San Diego County, California

Dear Mr. Hingtgen:

The U.S. Fish and Wildlife Service (Service) has reviewed the above referenced Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR), which we received on December 6, 2012. The Soitec Solar Program consists of four distinct project areas in the Mountain Empire Subregional Plan area and the Boulevard Subregional Plan area of unincorporated San Diego County (County). In total, the proposed solar projects would install approximately 7,290 concentrated photovoltaic trackers on 1,473 acres of land to produce 168.5 megawatts of electricity.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). Our comments are based on the information provided in the NOP, the Service's knowledge of sensitive and declining vegetation communities in the County, and our participation in regional conservation planning efforts.

The Service's primary concern, regarding the proposed project, is the potential for impacts to sensitive wildlife and plant species, specifically the golden eagle (*Aquila chrysaetos*) and the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*) and peninsular bighorn sheep (*Ovis canadensis*). Therefore, we recommend current habitat assessment and focused surveys be performed as appropriate to fully assess the potential for direct, indirect, and cumulative project-related impacts to these species. Furthermore, the proposed project is within the planning area for the proposed East County Multiple Species Conservation Plan (MSCP). The East County MSCP is a comprehensive habitat conservation planning program that attempts to preserve native habitats for

a multitude of sensitive species for which the County, Service, and California Department of Fish and Game entered into a Planning Agreement in 2008. The DEIR should fully analyze the potential impact of the proposed project on the East County MSCP. To further assist you in evaluating the proposed project, we have provided further (Enclosure).

We appreciate the opportunity to comment on the NOP and request a copy of the DEIR upon its release. If you have any questions or require additional information, please contact Eric Porter at 760-431-9440, extension 285.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

Enclosure

cc:
Eric Weiss, California Department of Fish and Game, San Diego

ENCLOSURE

To assist our review of the project and to assist the County in compliance with pertinent Federal statutes and laws, we recommend that the DEIR for the Soitec Solar Development Program project contain the following information.

1. A complete discussion of the purpose and need for, and description of, the proposed project, including all ancillary facilities, staging areas, and access routes to the construction and staging areas.

2. A complete analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs including the County of San Diego's draft East County MSCP. We recommend that the County ensure that the development of this and other proposed projects do not preclude long-term preserve planning options.

3. A complete list and assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying federally listed threatened, endangered, or proposed candidate species, and any locally unique species and sensitive habitats. Specifically, the DEIR should include:

   a. Discussions regarding the regional setting with special emphasis on resources that are rare or unique to the region that would be affected by the project. This discussion is critical to an assessment of environmental impacts.

   b. A current inventory of the biological resources associated with each habitat type on site and within the area of impact.

   c. A thorough assessment of rare plants and rare natural communities.

   d. A current inventory of rare, threatened, and endangered species on site and within the area of impact.

   e. Discussions regarding seasonal variations in use by sensitive species of the project site as well as the area of impact on those species, using acceptable species-specific survey procedures as determined through consultation with the Service and the California Department of Fish and Game, collectively the Wildlife Agencies. Focused species-specific surveys, conducted in conformance with established protocols at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required.

4. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources. All facets of the project should be included in this assessment. Specifically, the DEIR should provide:

a. Specific acreage and descriptions of the types of wetlands, scrub, and other sensitive habitats that will or may be affected by the proposed project or project alternatives. Maps and tables should be used to summarize such information.

b. Detailed discussions, including both qualitative and quantitative analyses, of the potentially affected listed and sensitive species (fish, wildlife, plants), and their habitats on the proposed project site, area of impact, and alternative sites, including information pertaining to their local status and distribution. The anticipated or real impacts of the project on these species and habitats should be fully addressed.

c. Discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any proposed Natural Community Conservation Planning (NCCP) protected lands.

   i) Impacts to wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated.

   ii) Discussions of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

   iii) If applicable, a discussion of the effects of any project-related dewatering or ground-water extraction activities to the water table and the potential resulting impacts on the wetland/riparian habitat, if any, supported by the surface and groundwater.

d. Discussions regarding possible conflicts resulting from wildlife-human interactions at the interface between the development project and natural habitats. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions.

5. A thorough discussion of mitigation measures for adverse project-related impacts on sensitive plants, animals, and habitats. Specifically, the DEIR should include/address:

   a. Where avoidance is infeasible, mitigation measures that emphasize minimization of project impacts. For unavoidable impacts, onsite habitat restoration or enhancement should be discussed in detail. If onsite mitigation is not feasible or would not be biologically viable (e.g., it would not adequately mitigate the loss of biological functions and values), offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

b. Mitigation measures to alleviate indirect project-related impacts on biological resources, including measures to minimize changes in the hydrologic regimes on site, and means to convey runoff without damaging biological resources, including the morphology of onsite and downstream habitats.

c. Where proposed grading or clearing is within 100 feet of proposed biological open space, or otherwise preserved sensitive habitats, a requirement for temporary fencing. Fencing should be placed on the impact side and should result in no vegetation loss within open space. All temporary fencing should be removed only after the conclusion of all grading, clearing, and construction activities.

d. A requirement that a County-approved biological monitor to be present during initial clearing, grading, and construction in sensitive habitat areas and/or in the vicinity of biological open space areas to ensure that conservation measures associated with resource agency permits and construction documents are performed. The biological monitor should have the authority, and responsibility, to halt construction to prevent or avoid take of any listed species and/or to ensure compliance with all avoidance, minimization, and mitigation measures. Any unauthorized impacts or actions not in compliance with the permits and construction documents should be immediately brought to the attention of the County and the Wildlife Agencies.

e. Plans for restoration and revegetation, to be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria (e.g., percent cover of native and nonnative species; species richness); (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

f. Measures to protect, in perpetuity, the targeted habitat values of proposed preservation and/or restoration areas from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Permanent fencing should be installed between the impact area and biological open space and be designed to minimize intrusion into the sensitive habitats from humans and domestic animals. There should be no gates that would allow access between the development and biological open space. Additional issues that should be addressed include proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, etc.

g. Development and implementation of a management and monitoring plan (MMP), including a funding commitment, for any on and/or offsite biological open space easements, if

applicable. An appropriate natural lands management organization, subject to approval by the County and Wildlife Agencies, should be identified. The MMP should outline biological resources on the site, provide for monitoring of biological resources, address potential impacts to biological resources, and identify actions to be taken to eliminate or minimize those impacts. A Property Analysis Record (PAR) or similar analysis should be completed to determine the amount of funding needed for the perpetual management, maintenance, and monitoring of the biological conservation easement areas by the natural lands management organization. It should be demonstrated that the proposed funding mechanism would ensure that adequate funds would be available on an annual basis to implement the MMP. The natural lands management organization should submit a draft MMP, PAR results, and proposed funding mechanism to the County and Wildlife Agencies for review and approval prior to initiating construction activities; the resulting final plan should be submitted to the County and Wildlife Agencies and the funds for implementing the MMP transferred within 90 days of receiving approval of the draft plan.

h. To avoid impacts to nesting birds, the DEIR should require that all clearing and grubbing occur outside the avian breeding season. The general breeding season for nesting birds occurs approximately February 15 through September 15; however, raptors may begin breeding as early as January 1. If project construction is necessary during the avian breeding season, a qualified biologist should conduct a survey for nesting birds within 3 days prior to the work in the area to ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), shall be delineated by temporary fencing, and shall remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be affected by the construction.

Soitec Solar Projects Programmatic EIR (3910 120005 ER): Boulevard, 12-18-12
Scoping hearing: Rugged Solar; Tierra Del Sol Solar; LanWest Solar & LanEast Solar

Preliminary and incomplete list of concerns /issues / objections presented by Donna Tisdale: property owner; Chair, Boulevard Planning Group; Secretary, The Protect Our Communities Foundation; President, Backcountry Against Dumps: 619-766-4170; tisdale.donna@gmail.com; PO Box 1275, Boulevard, CA 91905

- Request 30 extension of the January 7th comment deadline.
- Just these 4 industrial scale export energy projects represent 8,938,000 sq ft of 30 feet tall view blocking dual axis tracking Concentrating PV super modules--equivalent to approximately 48.32 Walmart Supercenters that average 185,000 sq ft.
- They are inconsistent and in conflict with Boulevard's vision, goals and policies as documented in Boulevard Community Plan that was approved on August 3, 2011 by the Board of Supervisors with the General Plan Update—after over a decade of hard work on a region wide level.
- Plan Amendments made to benefit commercial interests at the expense of resident and other non-participating land owners and resources is biased, unnecessary, and unjustified.
- Adverse impacts to Historic Route 80, scenic and open viewsheds, bucolic views of grazing livestock, abundant wildlife, and overall appealing rural community character.
- Conversion of over 1,400 acres land zoned for agriculture and residential uses that will reduce future land use opportunities that are more compatible with community character, including vineyards, and large lot residential subdivisions (LanWest site had previous subdivision map)
- Additional subject areas that must be added to County's current list to be analyzed in this PEIR: Lack of Need for project; point of use alternatives; environmental justice issues including disproportionate adverse and cumulative impacts; noise, low frequency noise and vibrations; seismic impacts including historic 7.8 Laguna Salada Earthquake in 1892[1] that created land ruptures in McCain Valley and soil liquefaction and rock slides in Jewel Valley and throughout the backcountry; health and safety; electrical pollution, increased ground currents, and trespass including through the air, common utility and/or ground connections and; increased risk of electrical sparked wildfires; need to change fire fighting tactics, suppression medium, and overall services; amounts and location of storage of transformer oil that can fuel fires and impact ground water quality (including mineral oil); safe setbacks; glint and glare; heat radiation / heat island effects and potential to impact microclimates, change storm / weather patterns, divert or deny groundwater recharge; socio-economic impacts on impacted residents and unwilling host community; increased insurance fire and property insurance rates; recreation
- Connected and Indirect Action projects including new gen-tie lines and off-site substation upgrades. Some project right of ways are not yet fully secured or disclosed.
- All Cumulative impact projects must be addressed including SolOrchard's newly proposed solar project at Tule Jim Road and Historic Rt 80 (PDS2012-MUP-12-025).
- Disclosure and clarification of liabilities of participating land owners in the event of off-site damages, nuisance, loss of property value, use and enjoyment; and how does non-profit/ charity land ownership impact liability for damages and nuisance?
- Full disclosure of all tax and rate payer funded incentives, sales and use tax exclusions, green energy credits, refunds, reduced or waiver of fees, regulations or requirements.
- Full disclosure of proposed Community Service District and potential renewable energy zone overlay; and proposed Renewable Energy Infrastructure Zone meant to further benefit and enrich applicants at the expense of non-participating property owners.
- Need for independent 3rd party applicant funded documentation of pre-and post-construction ambient noise, ground currents, groundwater levels at adjacent non-participating property lines at existing residences and other occupied structures, livestock grazing and watering areas, within public access areas, and all wells on adjacent properties. Electrical Magnetic Interference can damage living beings and sensitive equipment including well pumps.

[1] http://earthquake.usgs.gov/earthquakes/states/events/1892_02_24.php

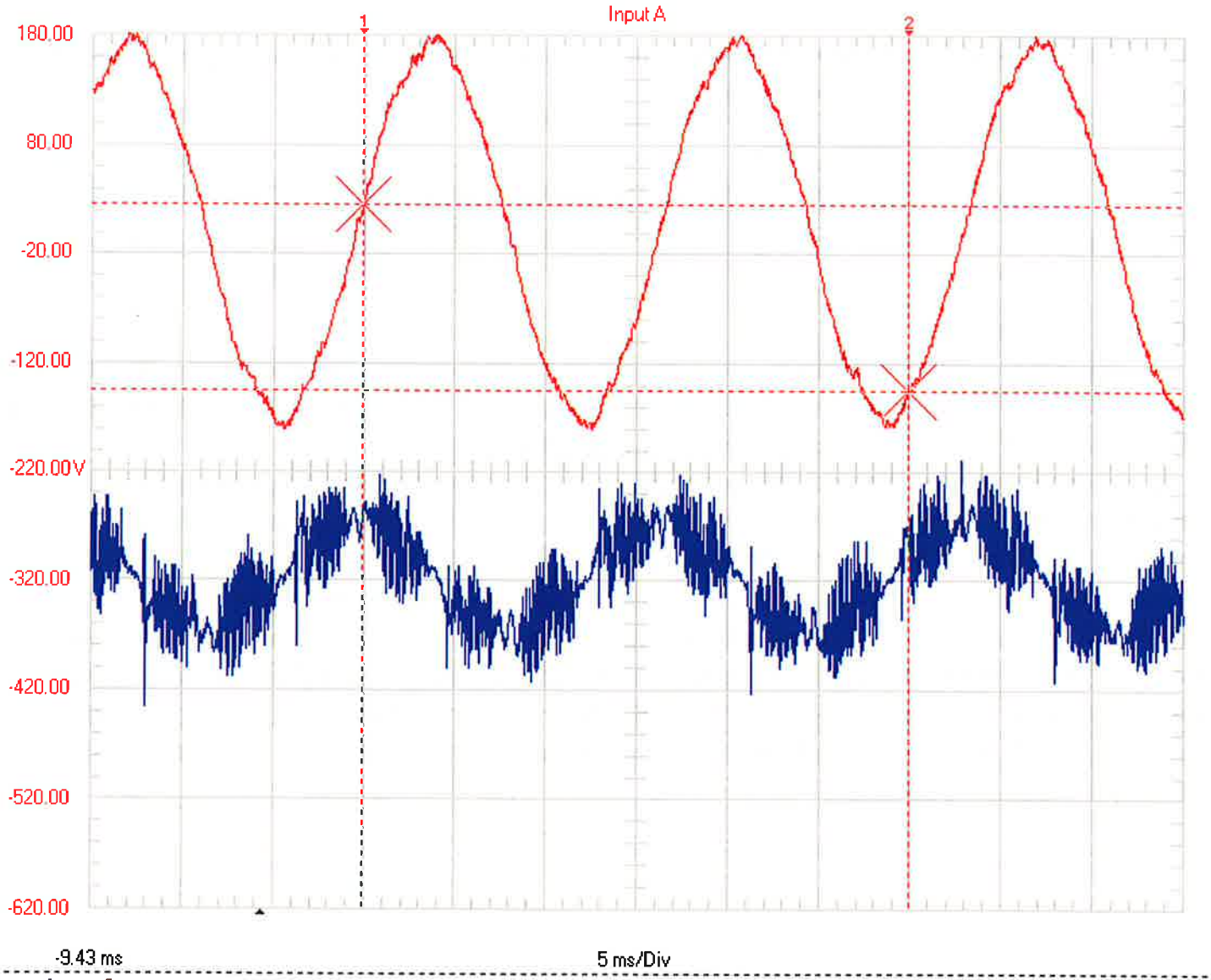
Hingtgen, Robert J

From: Sam Milham [smilham@dc.rr.com]
Sent: Thursday, December 13, 2012 3:25 PM
To: Hingtgen, Robert J
Cc: 'Donna Tisdale'
Subject: NOTICE OF PROGRAMMATIC EIR FOR 4 SOITEC SOLAR PROJECTS TOTALING 1,473 ACRES AND 168.5 MW OF CONCENTRATING PV SOLAR:
Attachments: Harmonics_and_Noise_in_Photovoltaic_(PV)_Inverter_and_the_Mitigation_Strategies.pdf

Dear Mr. Hingtgen,

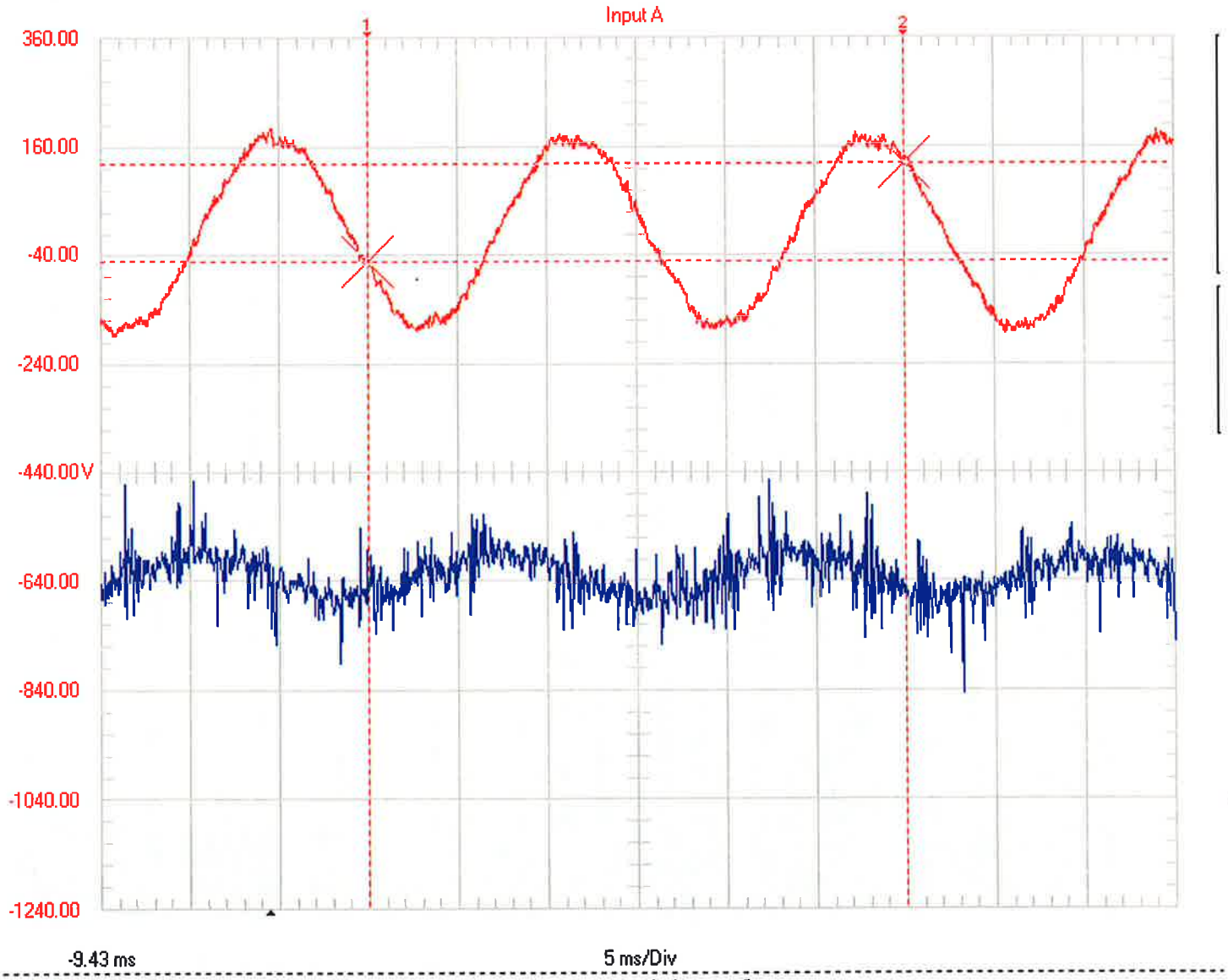
My name is Samuel Milham. I'm a physician-epidemiologist and have been studying the health effects of electromagnetic fields for over 30 years. I have written a book about it called "Dirty Electricity", and have a website: www.sammilham.com.

I have measured many residences with roof-top solar, and find that they all generate dirty electricity. I recently began study of a 23 megawatt solar facility near Niland CA. The inverters, switchgear room and substation were all loaded with high frequency transients. The attached oscilloscope tracings show a contaminated 60 Hz sine wave in the A block and that data block B ,which has voltage passed though a high pass filter to remove the 60 Hz, has 45 V of electricity. I went through hundreds of other scope tracings I have made over the years, and found none that were above 2 V in the B block. The harmonic distortion is low, so all this electricity must be transients. I enlarged that blue curve and found that the transients' primary frequency is 20 KHz.



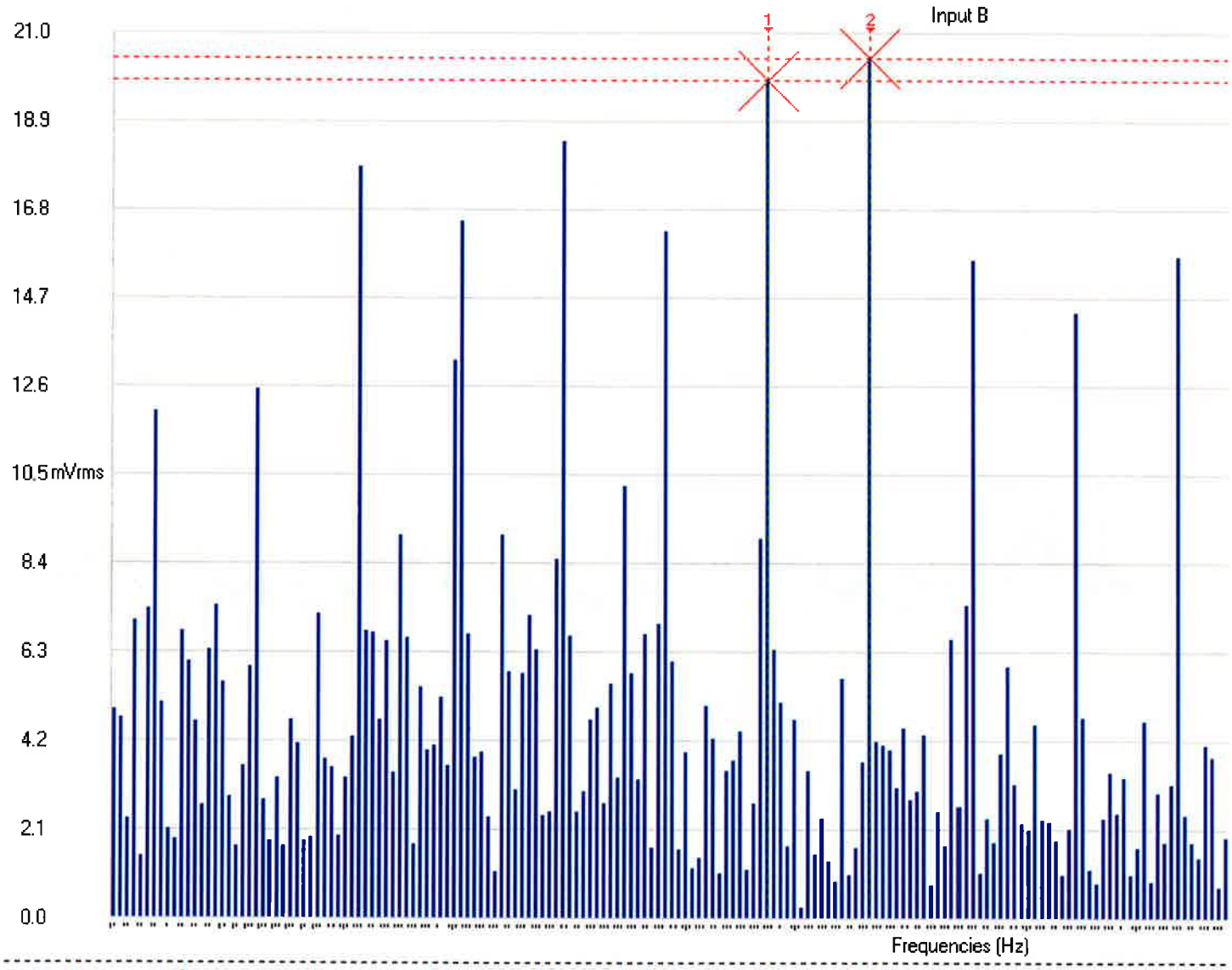
Switchgear room outlet 23 Mw 440 E beal St Niland CA

A similar pattern is seen in an outlet in an inverter with 97 volts of electricity in the high frequecies:



Inverter outlet solar array Niland CA

The harmonics spectrum in air near an inverter shows massive harmonic distortion with repeating peaks 900 Hz apart.:



Solar inverter in air Niland solar array

The air, ground and wires connected to this grid will all be contaminated with high frequency voltage transients. The people who work at these facilities, live near them or receive the electricity they generate will all be at an increased risk of morbidity and mortality. Until clean inverters can be made, these projects should be rejected. The inverter industry recognizes the problem (See att.), but to my knowledge, all grid intertie inverters generate electrical pollution.

Respectfully, Samuel Milham MD, MPH
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760 775-5878
smilham@dc.rr.com
www.sammilham.com

White Paper

Soonwook Hong, Ph. D.
Michael Zuercher-Martinson

Harmonics and Noise in Photovoltaic (PV) Inverter and the Mitigation Strategies

1. Introduction

PV inverters use semiconductor devices to transform the DC power into controlled AC power by using Pulse Width Modulation (PWM) switching. PWM switching is the most efficient way to generate AC power, allowing for flexible control of the output magnitude and frequency. However, all PWM methods inherently generate harmonics and noise originating in the high dv/dt and di/dt semiconductor switching transients. In order to reduce harmonics and switching noise, external filtering needs to be added. The following conceptual figure shows how the AC output voltage is generated at the inverter power stage output using PWM switching.

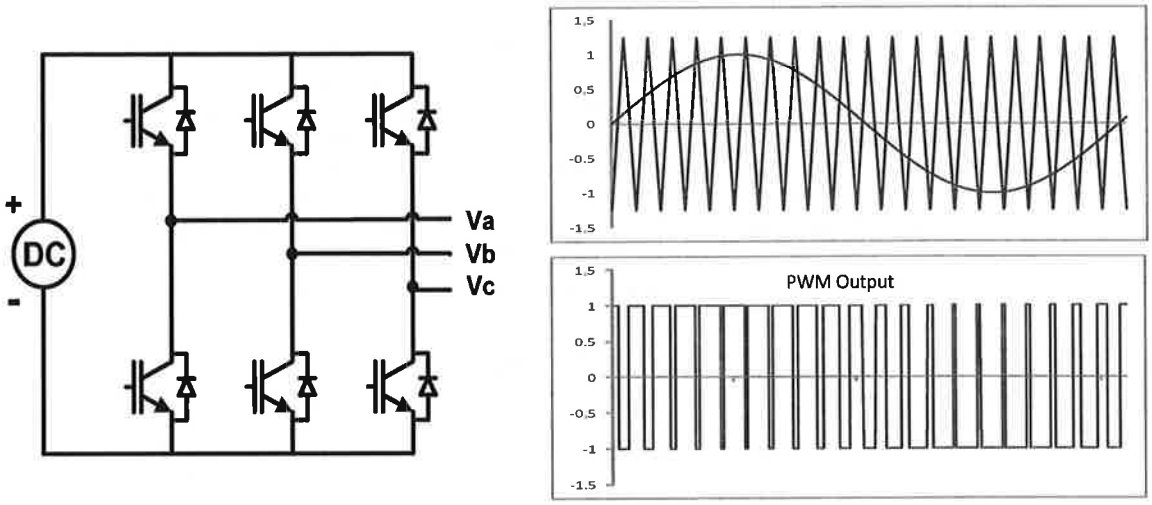


Figure 1. Three Phase Inverter PWM Generation

As shown in Figure 1, the PWM waveform is generated by comparing a reference signal (sinusoidal red trace) and a carrier waveform (triangular blue trace). The PWM waveform controls the Insulated Gate Bipolar Transistor (IGBT) switches to generate the AC output. When the reference signal is bigger than the carrier waveform, the upper IGBT is triggered on (lower IGBT being off) and positive DC voltage is applied to the inverter output phase (A). In the other case, when the reference signal is smaller than the triangular carrier waveform, the lower IGBT is turned on (upper IGBT being off) and negative DC voltage is applied to the inverter output. The reference signal magnitude and frequency determine the amplitude and the frequency of the output voltage. The frequency of the carrier waveform is called the modulation frequency. In order to generate more precise sinusoidal AC voltage waveforms and keeping the size of the LC filter small, high modulation frequencies are generally used.

There are many industrial standards that control the noise and harmonic contents in an inverter system, such as AC motor drives, Uninterrupted Power Supplies (UPS) or other AC power applications. In the case of grid-tied PV inverters, the Institute of Electrical and Electronics Engineers (IEEE) 1547, Underwriters Laboratories (UL) 1741 and FCC Part 15B standards specify the guidelines to control the harmonic contents of the output current and the Electro Magnetic Interference (EMI) generation in the inverter. The guidelines guarantee that:

- The inverters do not generate excessive noise and harmonics, which can contaminate the AC grid voltage.
- The inverters are immune to electrical and magnetic noise from other sources and provide reliable operation in an environment of high electromagnetic noise.
- The inverters do not generate unwanted radiated or conducted noise, which can disturb the stable operation of other equipment coupled either electrically or magnetically.

Most of the PV inverters manufactured in the United States are designed to meet UL 1741 and IEEE 1547 standards. As the capacity of PV generation in power distribution systems grows, utility companies become increasingly concerned that the noise and harmonics from the PV inverter systems will adversely impact the power quality or affect the operation of other equipment and cause it to malfunction or otherwise disrupt the stable operation of the power distribution system.

This article lists the possible sources of the harmonics and switching noise generated by the PV inverter and describes how they can be controlled to meet customer requirements and relevant industrial standards. To present the theoretical and experimental analysis of this phenomenon, a Solectria Renewables PVI 82kW - 480VAC PV inverter system is being used. However, since most PV inverters have similar types of component configurations, the information in this article can be used to understand the harmonics and EMI issues in a variety of inverter systems.

2. PV Inverter System Configuration

Figure 2 shows the block diagram of a Solectria PVI 82kW inverter, including the filters used for attenuating the high frequency noise on the inverter output voltages and currents. There are two main sources of high frequency noise generated by the PWM inverters. The first one is the PWM modulation frequency (2 ~ 20kHz). This component is mainly attenuated by the LC filter and the transformer. The second source originates in the switching transients of the power electronics switching devices (IGBTs). The frequency of the switching transients is dependent on the device switching characteristics, gate drive circuit and the snubber circuit in the inverter, and ranges from several hundred kHz to 100MHz. The series filter and the shunt filter are designed to attenuate the frequency components caused by these switching transients and also the harmonics from other subsystem components such as the switched mode power supply (SMPS) and other inverter control circuitry.

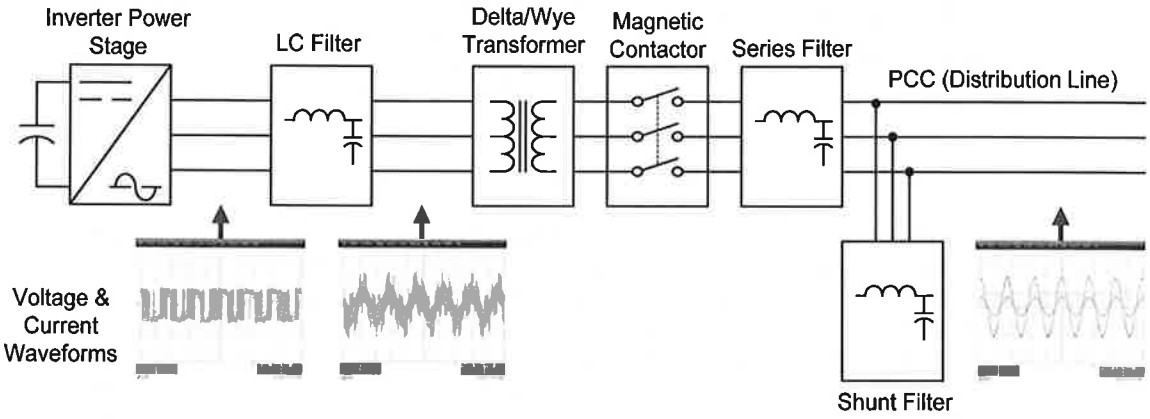


Figure 2. PVI 82kW Inverter Filtering Configuration and V/I Waveforms

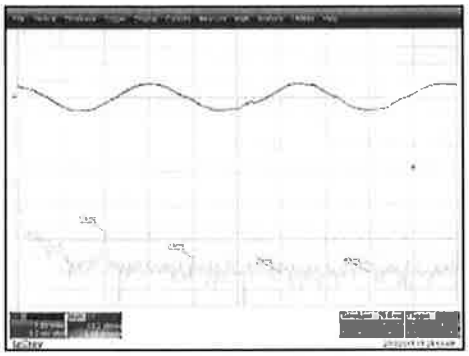
Figure 2 also shows the voltage and current waveforms in each stage of the inverter. Most of the harmonic components in the voltage and current waveforms are filtered out by the LC, series and shunt filters. The inverter output current is in phase with the voltage (unity power factor) and the total harmonic distortion (THD) is less than 5% at rated operation, which is far better than the current THD of most industrial loads, and is comparable to the output current waveforms of an Uninterruptable Power Supply (UPS).

2.1. PWM frequency and LC filter

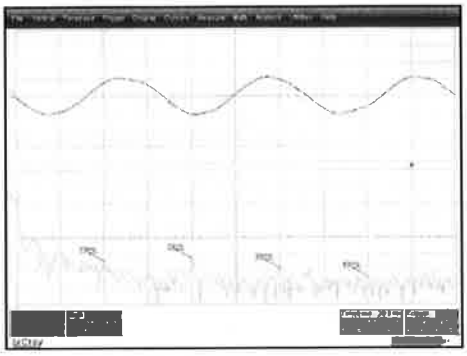
An LC filter is used to attenuate the PWM modulation frequency and its harmonics in the inverter system. The leakage inductance of the integrated isolation transformer further attenuates the high frequency component so that the output current will be sinusoidal and meet the desired THD limit. A symmetrical PWM scheme is generally preferred to reduce the ripple in the inverter output current. A symmetrical PWM scheme compared to an asymmetrical PWM reduces the effective peak-to-peak ripple current by half when using the same switching frequency.

As shown in Figure 2, the inverter's power stage output voltage waveform is composed of a series of square waveforms and includes high frequency components. The current waveform is relatively smooth and sinusoidal as the inverter output current flows into the inductor in which it cannot change instantaneously.

Figure 3 compares the power stage output to the inverter output current. In the time domain, the waveforms do not look very different. However, the Fast Fourier Transformation (FFT) results show that the inverter current after the LC filter has much less high frequency components than the unfiltered power stage output current.



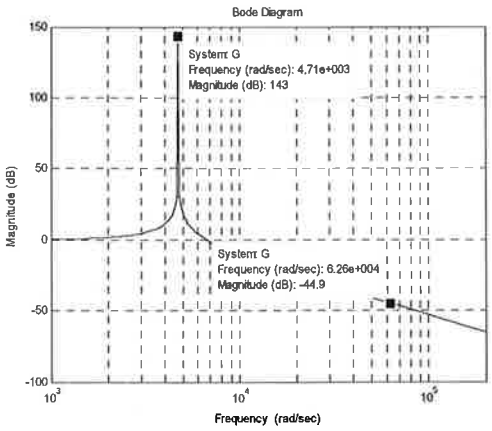
a) Power stage output current waveform and FFT



b) Inverter output current waveform and FFT

Figure 3. PVI 82kW Current Harmonic Analysis

This filtering effect can be illustrated in a Bode Plot. Figure 4 (a) shows the LC filter frequency characteristics using the theoretical frequency analysis and the measured harmonic components with a frequency analyzer when the inverter operates at full power. In the example the LC filter resonant frequency is tuned to 750Hz. Assuming a PWM modulation frequency of 10 kHz it would be attenuated to 45dB below the fundamental current component. The actual inverter output current FFT result shows that the 10 kHz ripple component is further attenuated to 60dB below the fundamental component by the shunt filter, which is about 0.1% of the fundamental 60Hz current. Figure 4 (b) shows that all the harmonic component frequencies are well controlled and the overall THD is 2.31%.



a) LC Filter Bode Plot (Theoretical Result)

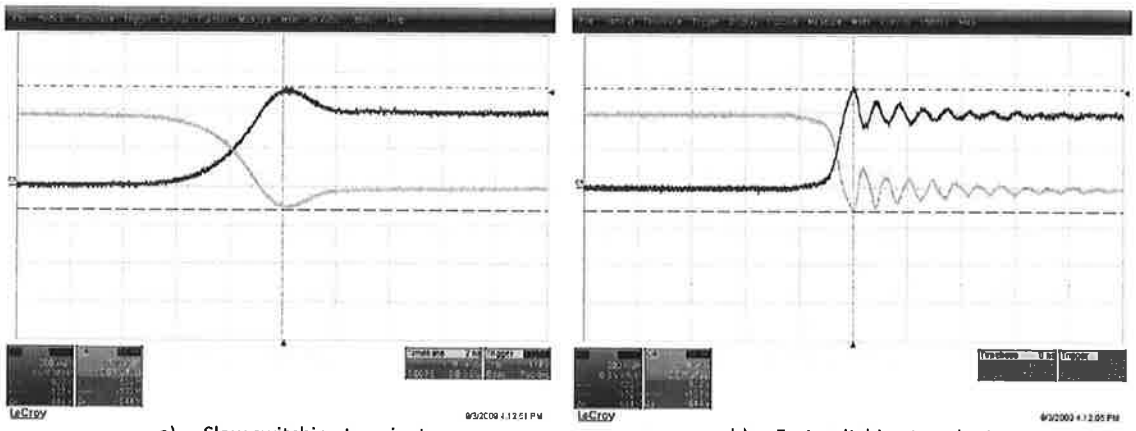
THD	2.31%	12th	0.08%
		13th	0.16%
2nd	0.71%	14th	0.25%
3rd	1.85%	15th	0.05%
4th	0.57%	16th	0.05%
5th	0.52%	17th	0.06%
6th	0.10%	18th	0.04%
7th	0.61%	19th	0.05%
8th	0.07%	20th	0.04%
9th	0.08%	21st	0.05%
10th	0.12%	22nd	0.03%
11th	0.24%	23rd	0.07%

b) Inverter output current FFT (Test Result)

Figure 4. PVI 82kW System Output Current Harmonics Analysis

2.2. High frequency noise generated by switching transients

When the switching devices are turned on and off, high dv/dt and di/dt cause oscillations during the transients, which contain high frequency noise in the range of 100kHz or higher. Figure 5 shows the switching transients of the IGBT voltage and current with two different gate drive circuit designs.



a) Slow switching transient b) Fast switching transient

Figure 5. High Frequency Noise Generated by IGBT Switching Transients

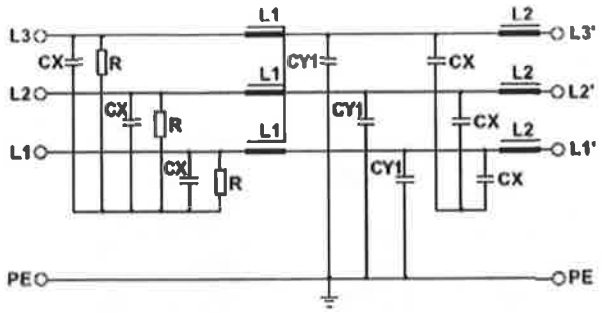
By using a slow switching transient (a), the oscillation can be minimized but switching losses are increasing due to longer operation of IGBTs in the active region. With a faster switching speed, the switching losses can be kept lower but oscillations in voltage and current are being generated due to the parasitic inductance and capacitance in the inverter stack. This high frequency oscillation falls into the frequency band regulated by FCC. In order to increase the overall efficiency of the inverter and at the same time to minimize EMI, the IGBT switching speed and noise filter design must be carefully coordinated.

There are other sources of switching noise in the inverter system caused by the Switch Mode Power Supplies SMPS and the digital control logic circuits. The noise from these components can reduce the system performance by contaminating internal analog feedback signals, resulting in logic level or communication errors and could also cause EMI interference with the outside world.

The high frequency noise can be further classified into radiated noise and conducted noise. The radiated noise can be controlled in many ways at the board level and at the system level such as shielding, component layout, wiring routing, and signal grouping. The conducted noise can be controlled by grounding or the use of proper filters, carefully designed to eliminate specific frequency components. In Solectria's PVI 82kW inverter, excellent noise levels were achieved by implementing a robust printed circuit board (PCB) layout in combination with hardware and software filters. Noise in signal circuits is solely controlled by ferrite beads and proper grounding. The PVI 82kW inverter also features series and shunt filters in the final output stage of the system. These filters are frequency band limiting and designed to filter out switching frequency transients.

Series Filter

The IGBT switching transients normally last 0.1 ~ 10usec, therefore, the filter should be tuned to between 100kHz and several MHz. Also, the controller uses a SMPS switched at 150kHz. The series filter in the PVI 82kW attenuates both common mode and differential mode noise. It provides 80dB common mode attenuation for the frequencies between 100kHz and 1MHz, and 70dB differential mode attenuation for the frequencies between 200kHz and 3MHz. The filter is selected to eliminate the system specific dominant frequency components, and is not active in the lower PWM modulation frequency range.



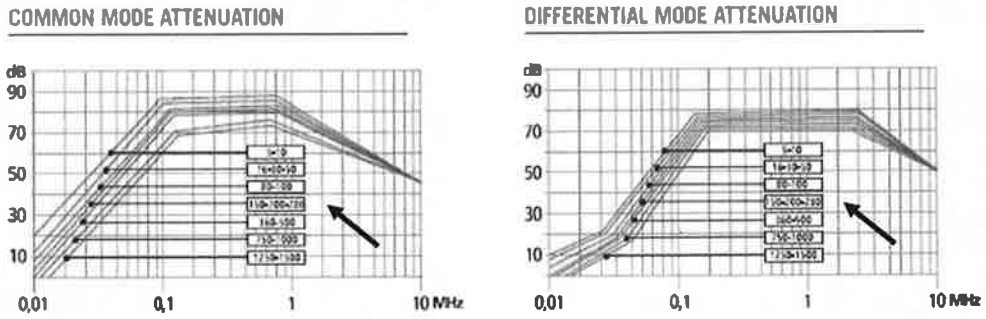


Figure 6. Series Filter Characteristics

Shunt Filter

The selected shunt filter for the PVI 82kW inverter has a resonance point around 150kHz and provides a reduction of noise interference particularly in the frequency range between 50kHz and 5MHz. This filter is added to further reduce the switching noise from the power stage as well as from the switch mode power supply in the inverter control system. The shunt filter also provides a protection circuit against surges of atmospheric origin to the grid, typically caused by lightning and characterized by high current levels of short duration. The filter reacts in a few microseconds to current spikes of a few kA, and protects the system against impulse surges of up to 1000 volts.

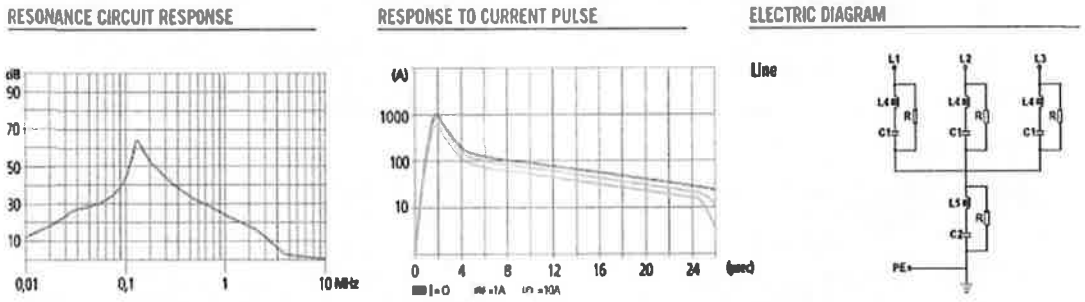
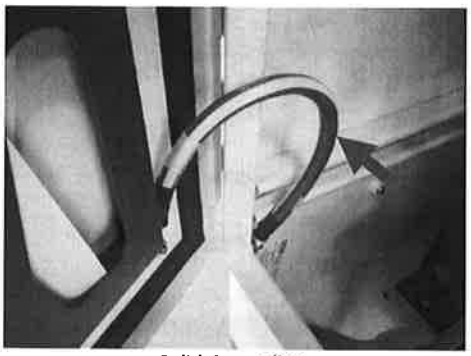


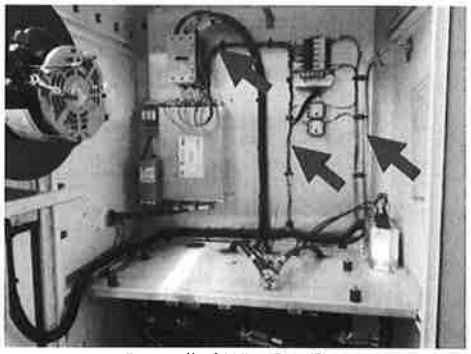
Figure 7. Shunt Filter Characteristics

3. System wide EMI Control

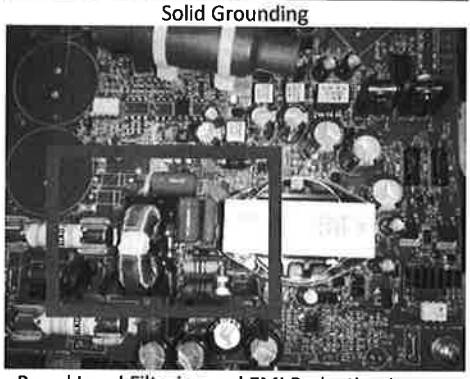
The following pictures show some of the EMI reduction strategies that are used in a PVI 82KW inverter.



Solid Grounding

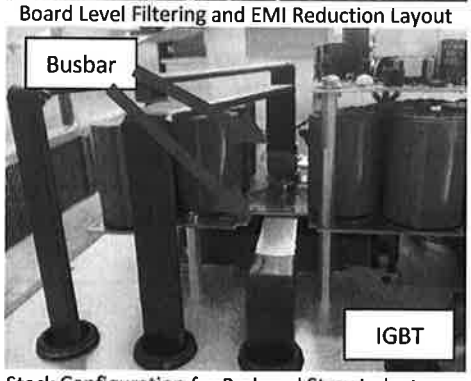


Controlled Wire Routing

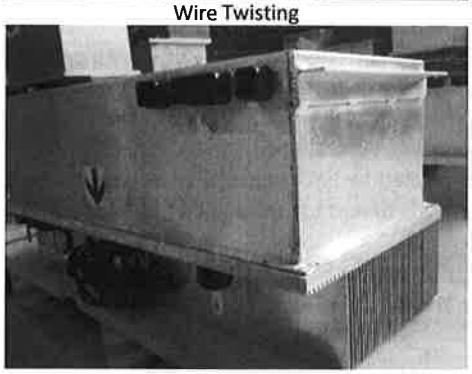


Board Level Filtering and EMI Reduction Layout

Wire Twisting

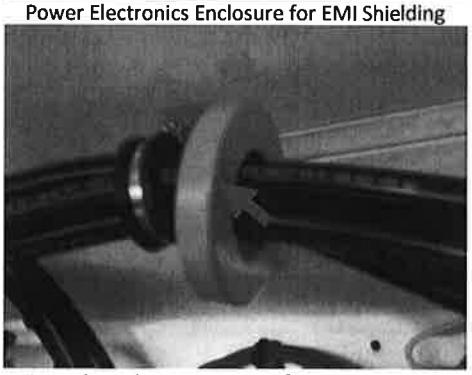


Stack Configuration for Reduced Stray Inductance



Power Electronics Enclosure for EMI Shielding

Analog Signal Conditioning using Ferrite Beads



DC side High Power Wiring for EMI shielding

4. Harmonics Generated by Firmware Control

Conventional PV inverters firmware runs at least two nested control loops. One is the AC current control loop to control the inverter output current, purely sinusoidal and in phase with the grid voltage, generating active power. The other is the DC voltage control loop in conjunction with a Maximum Power Point Tracking (MPPT) algorithm to most efficiently harvest the DC power generated by the solar panels.

When grid conditions change due to power grid transients, power line faults or load based voltage fluctuations in the distribution line, the inverter output current is controlled to balance the power transfer from the PV array to the grid. If the current control loop gains are tuned properly, the dynamic response due to the transients can be controlled at the bandwidth usually less than 1kHz. The DC voltage control loop is around the current control loop and is usually controlled at a lower sampling rate. If the DC voltage fluctuates due to sudden changes in weather conditions, the DC voltage control loop has a certain bandwidth to react and stabilize the system output. During sunlight transients, the system might generate even slower oscillations in the DC bus voltage and output AC currents control. Since the DC voltage control loop bandwidth is low, it does not cause any harmonics or EMI issues. However, if the voltage control loop were not tuned properly, the generation efficiency would decrease due to failure to track the maximum power point of the PV panels.

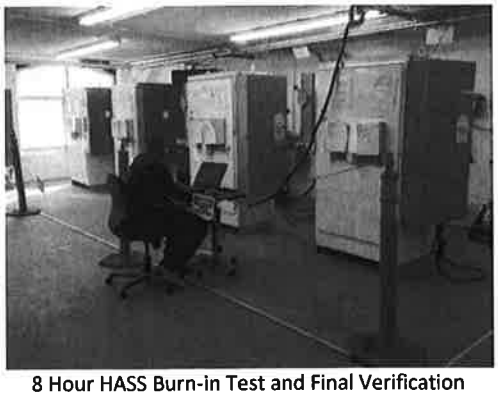
Solectria Renewables' inverters have been fully tested at different load conditions to have excellent dynamic characteristics for both the AC current and DC voltage control loops. The AC current control bandwidth is about 2kHz and the DC voltage control bandwidth is more than 100Hz.

5. Conclusion

This article described how the current harmonics and EMI are controlled in PV inverters. IEEE 1547, UL 1741 and FCC Part 15B standards impose strong guidelines for grid-tied PV inverters to reduce current harmonics and eliminate electromagnetic noise. Extra attention is given by the PV inverter manufacturer to design inverters that are immune to EMI problems and guarantee reliable operation of the inverter in all worst case operating conditions.

Different types of practical harmonics and noise reduction strategies for a commercial three-phase PV inverter were introduced in this article. The filtering of harmonics and EMI needs to be carefully designed to maintain the control bandwidth of the inverter and to provide clean and reliable control signals in both analog and digital electronic circuits. The PVI 82kW inverter system is equipped with several levels of harmonics and EMI filtering and its effectiveness and reliability have been proven in the harshest commercial and utility scale applications.

Controlled Workmanship



8 Hour HASS Burn-in Test and Final Verification

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS LOS ANGELES DISTRICT
Regulatory Division, Carlsbad Field Office
6010 Hidden Valley Road, Suite 105
Carlsbad, California 92011

REPLY TO
ATTENTION OF

December 13, 2012

Regulatory Division

County of San Diego
Planning & Development Services
Attention: Mr. Robert Hingtgen
5510 Overland Avenue, Suite 110
San Diego, California 92123

Dear Mr. Hingtgen,

This letter is in response to your request, dated December 6, 2012, for our review and comments regarding the Notice of Preparation of an Environmental Impact Report (EIR) for the proposed Soitec Solar Projects (File Number SPL-2012-00874-MBS). The proposed project includes the development of four solar energy projects: Tierra Del Sol, Rugged Solar, LanWest, and LanEast. The projects are located in the Mountain Empire Subregional Plan Area and the Boulevard Subregional Planning Area within unincorporated San Diego County, California.

We have reviewed the above cited project information with respect to the United States (U.S.) Army Corps of Engineers' (Corps) authority to issue Department of the Army (DA) permits pursuant to section 10 of the Rivers and Harbors Act (33 U.S.C. 403) and section 404 of the Clean Water Act (CWA; 33 U.S.C. 1344). Based on the information furnished to our office, the Corps is currently unable to determine whether construction activities associated with the proposed project would involve the discharge (placement) of fill material into jurisdictional waters pursuant to our authority under section 404 of the CWA. The Corps recommends a jurisdictional delineation report using the procedures set forth in the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region" and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States" be provided to this office for review and verification. Please include in this report a detailed description of all ground-disturbing activities associated with the proposed project occurring on and in the immediate vicinity of potential waters of the U.S. as well as a cross-section of the proposed work and the existing conditions of the proposed project area.

Please note that a Department of Army permit is required for:

The discharge of dredged or fill material into, including any redeposit of dredged material other than incidental fallback within, "waters of the United States" and adjacent wetlands pursuant to section 404 of the Clean Water Act of 1972. Examples include, but are not limited to:

1. Creating fills for residential or commercial development, placing bank protection, temporary or permanent stockpiling of excavated material, building road crossings, backfilling for utility line crossings and constructing outfall structures, dams, levees, groins, weirs, or other structures;

2. Mechanized landclearing, grading which involves filling low areas or land leveling, ditching, channelizing and other excavation activities that would have the effect of destroying or degrading waters of the United States;

3. Allowing runoff or overflow from a contained land or water disposal area to re-enter a water of the United States; and

4. Placing pilings when such placement has or would have the effect of a discharge of fill material.

If you have any questions, please call me at 760-602-4836 or via e-mail at Meris.Bantilan-Smith@usace.army.mil. Please refer to this letter and SPL-2012-00874-MBS in your reply.

Sincerely,

Meris Bantilan-Smith
Project Manager