Renewable Energy Update

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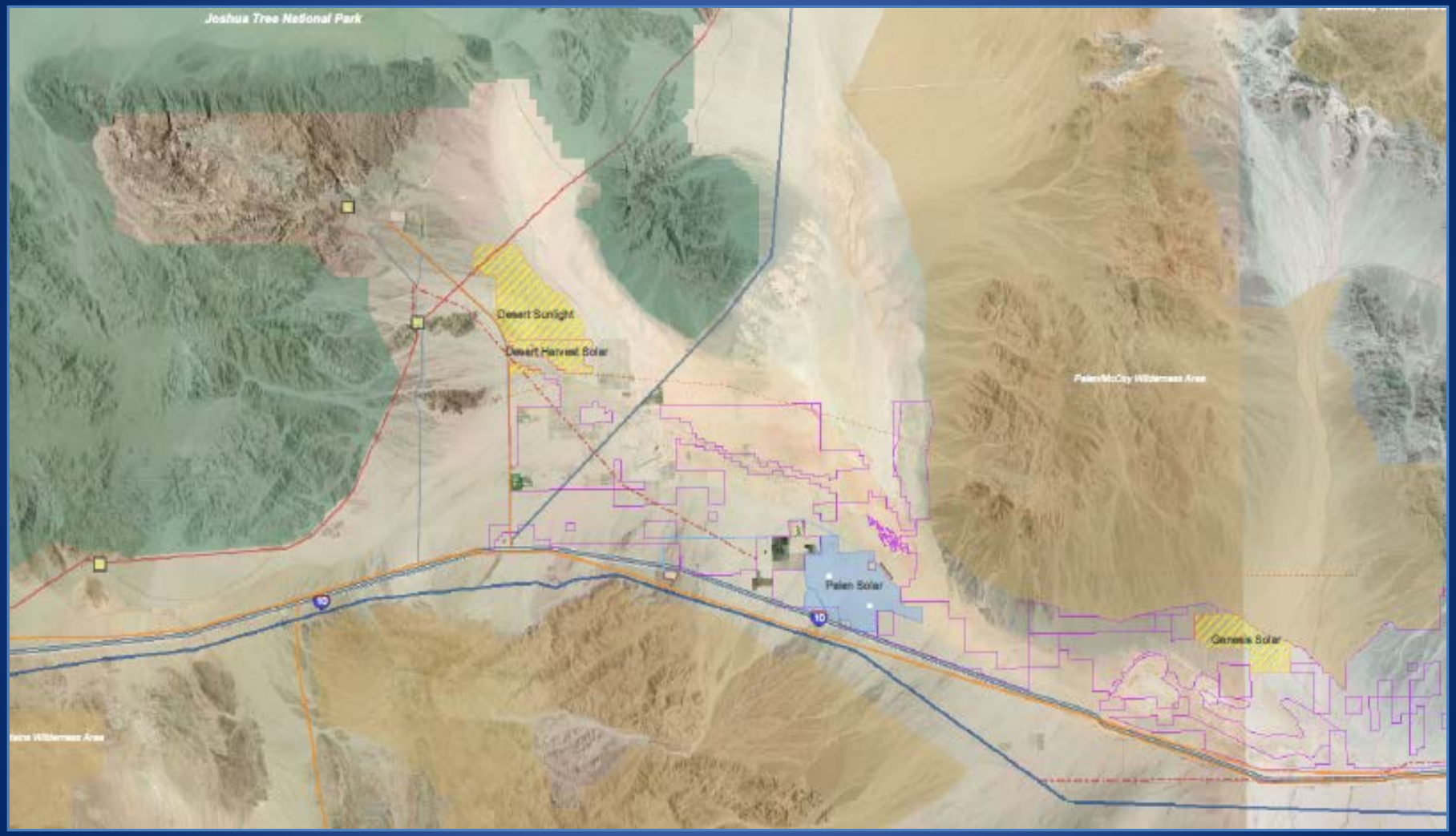
PALEN

A tale of three projects

(apologies to Charles Dickens)

Location


Joshua Tree National Park
Desert Sunlight
Desert Harvest Solar
Palen Solar
Genesis Solar
10
10

Palen Site

History of the Palen Solar Site

Palen Solar Power Project

- Solar Millennium, LLC (later Solar Trust of America), proposed the Palen project as a concentrated solar thermal electric generating facility using Trough Technology;
- ROW Grant application filed early 2009;
- CEC completed CEQA in third quarter 2010, approved the project in December 2010;
- BLM EIS analysis conducted from 2009 - May, 2011; no decision issued due to bankruptcy of Solar Trust of America in late 2011.

Palen Solar – Trough Technology

Reflector units are approximately 24’ tall and 42’ in length and each has a specific focal length to maximize reflected sun rays.

Palen Solar – Trough Technology

24 reflectors move in unison concentrating the sun rays on the therminol transfer fluid tube. Temperature can reach 900 degrees

Palen Solar – Trough Technology

Ground surface must be level and clear of brush, grass, weeds, etc. due to length of moving mirror rows and potential heat build-up

Palen Solar – Trough Technology

Service road between power arrays

Palen Solar Electric Generating System (PSEGS)

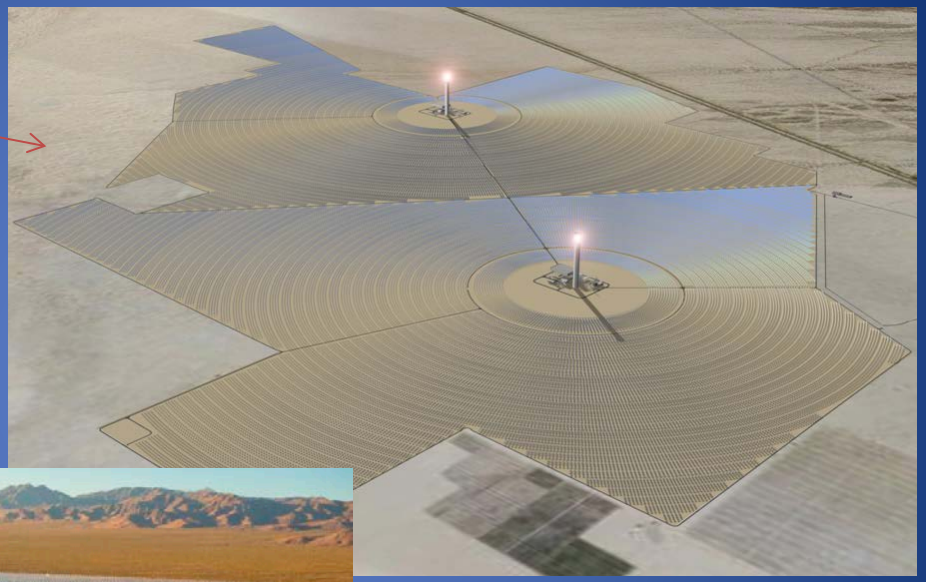
Concentrated Solar Power Tower

PSEGS

- BrightSource Energy acquired project in August, 2012;
- Plan of Development submitted to BLM in February, 2013;
- Change of technology from solar thermal trough to Concentrated Solar Tower (collectors located on the top of power towers).

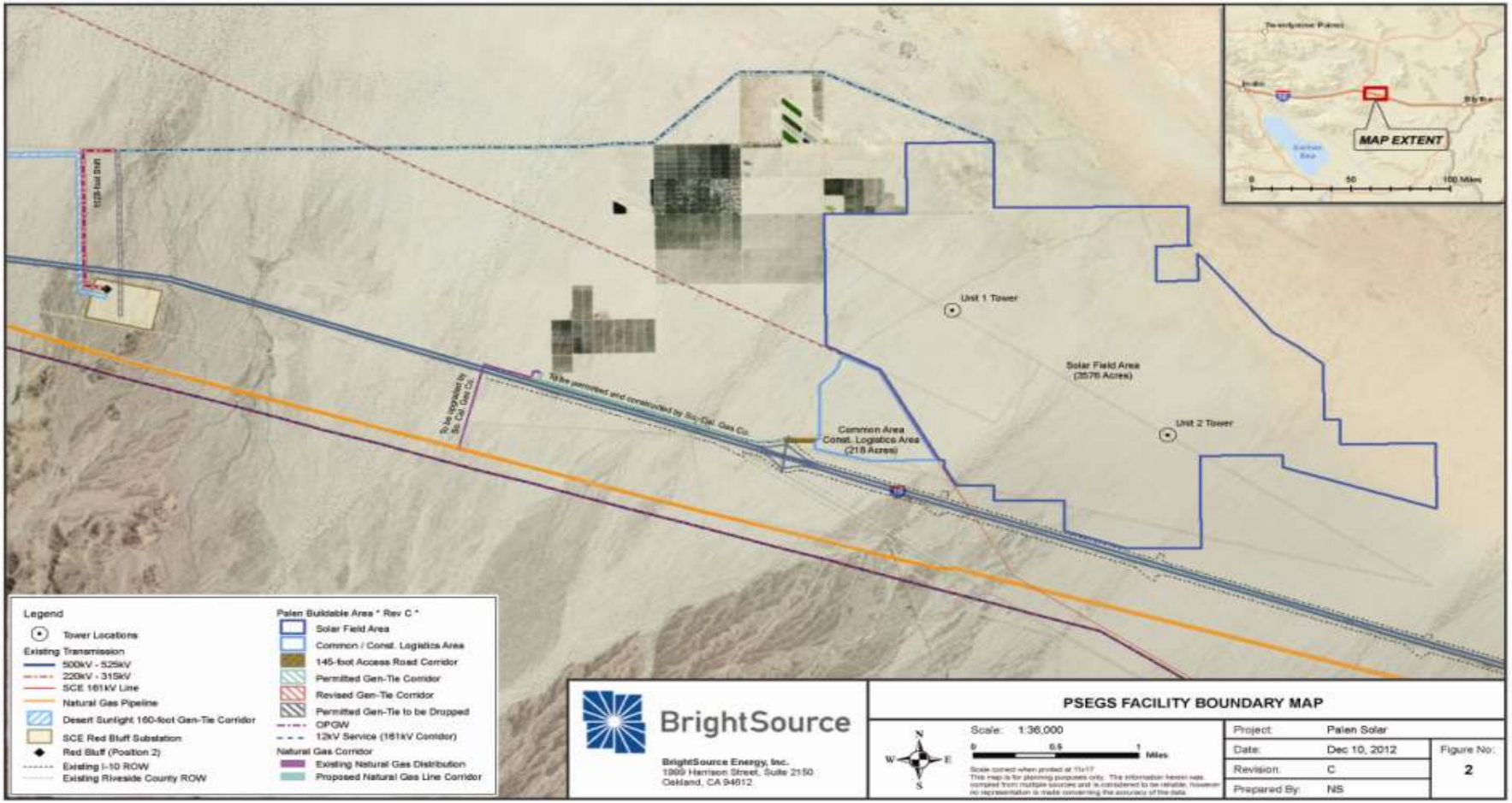
PSGES Technology

Simulation of Palen Project

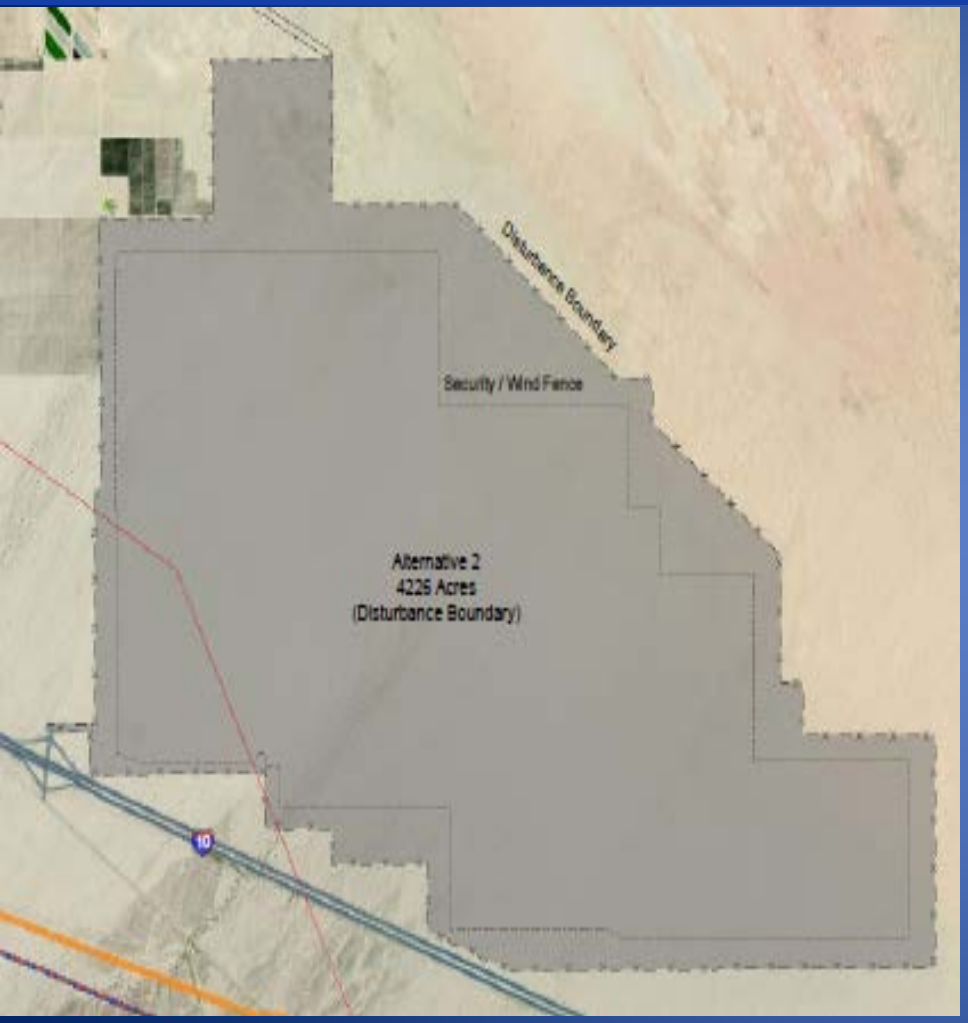


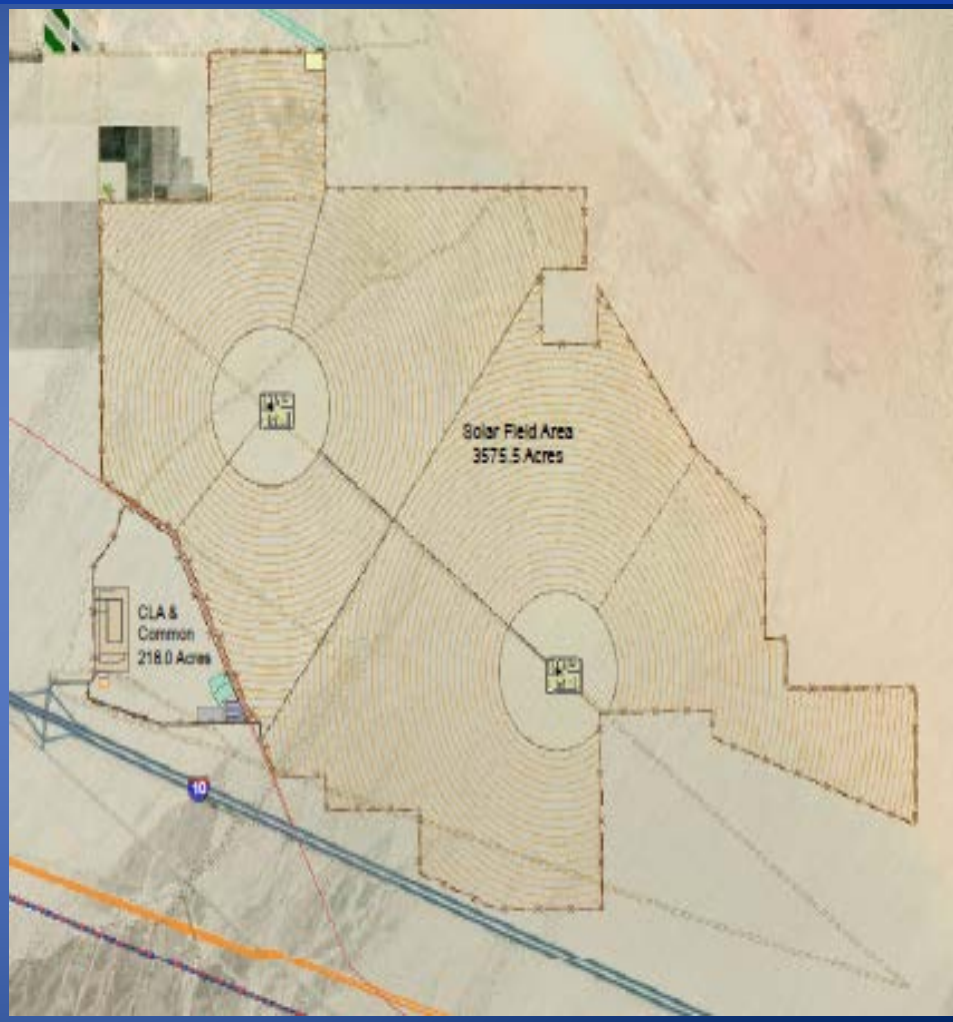
Actual photo: Ivanpah Project

PSEGS Proposed Project Map



Solar Trough Project VS PSEGS Project footprint





Major Issues

- Cultural resources associated with Palen Dry Lake and sand dune complex;
- Visual resources associated with two 750 foot high towers;
- Avian impacts including eagles

Cultural Landscape Impact Potential

White line represents 750’ tower.
Towers have a visual impact upon historical and cultural sites.

Proposed Palen Towers 750’ vs 350’ at Ivanpah

As seen from a distance of 4 miles

Proposed Palen Towers 750’ vs 350’ at Ivanpah

As seen from a distance of 3 miles

Palen Solar Project (PV)

Palen Solar Project (PV)

- EDF acquired ownership of the Palen Solar Tower Project in the 3rd quarter 2015;
- New Plan of Development, technology change to photovoltaic panels (PV), and ownership documentation submitted to BLM on December 23, 2015

Palen Solar Project (PV) Components

- Project components:
  - Generation area—PV arrays, switchyard, inverters, overhead lines, and access corridors
  - O&M Facility – either on or off site
  - On-site electrical substation and switch gear
  - Gen-tie same as for PSEGS
  - Site security, fencing, and lighting

Palen Solar Project (PV) Technology

- Single-axis tracker technology
- Multiple blocks of up to 2.5 MW AC

Palen Solar Project (PV)

Single track action from east to west and evening reset

Palen Solar Project (PV)

Total angel of track is approximately 180 degrees

Palen Solar Project (PV)

Tracking tube and brace

Palen Solar Project (PV)

Solar panel frame installation – panels slide into place

Palen Solar Project (PV)

Installed solar panels

Palen Solar Project (PV)

Installed solar panels – blocks or arrays

Comparison of Technologies

	PSPP	PSEGS	Palen Solar PV
Height	25 feet + (troughs)	760 feet (towers)	Up to 18 feet (PV panels)
Acres	4,370	3,800	4,200
Construction Water Use	1,770 afy	400 afy	650 to 850 afy
Operational Water Use	300 afy	200 afy	10 to 15 afy
Construction Timeframe	39 months	34 months	30 months
Average Employment	566 workers/ month	998 workers/ month	175 workers/ month
Peak Employment	1,140	2,311	700
Truck Deliveries	20 – 30 one way trips/day	40 one way trips/day	10 – 15 one way trips/day

Acre-feet per year (afy)

Project Roles

- BLM is the Lead Agency under NEPA
  - BLM Staff Support
  - Supported by Aspen Environmental Group as Third-Party Contractor
- Riverside County is likely to be the Lead Agency under CEQA
- EDF RE is the Applicant proposing the Project
  - Supported by Ironwood (biological resources) and Applied Earthworks (cultural resources and tribal outreach)

NEPA and CEQA Processes

- NEPA Process:
  - Supplemental EIS based on the 2011 Final PA/EIS for the PSPP
  - Include updated information from 2013 SEIS as applicable
- CEQA Process:
  - Supplemental EIR based on the 2010 Energy Commission Revised Staff Assessment for the PSPP
  - Include updated information from 2014 Final Staff Assessment as applicable

NEPA and CEQA Processes

Palen PV is based on an existing application

It is not subject to decisions in the DRECP ROD

Biological Resources

- Site thoroughly surveyed in 2009-2010 for PSPP
- Survey Findings:
  - Desert Tortoise (60% of site appropriate habitat, 40% blowsand and dunes)
  - Mojave fringe-toed lizard (~50% of site is suitable habitat)
  - Rare plants (Harwood's woollystar)
  - Western burrowing owl
  - Desert kit fox

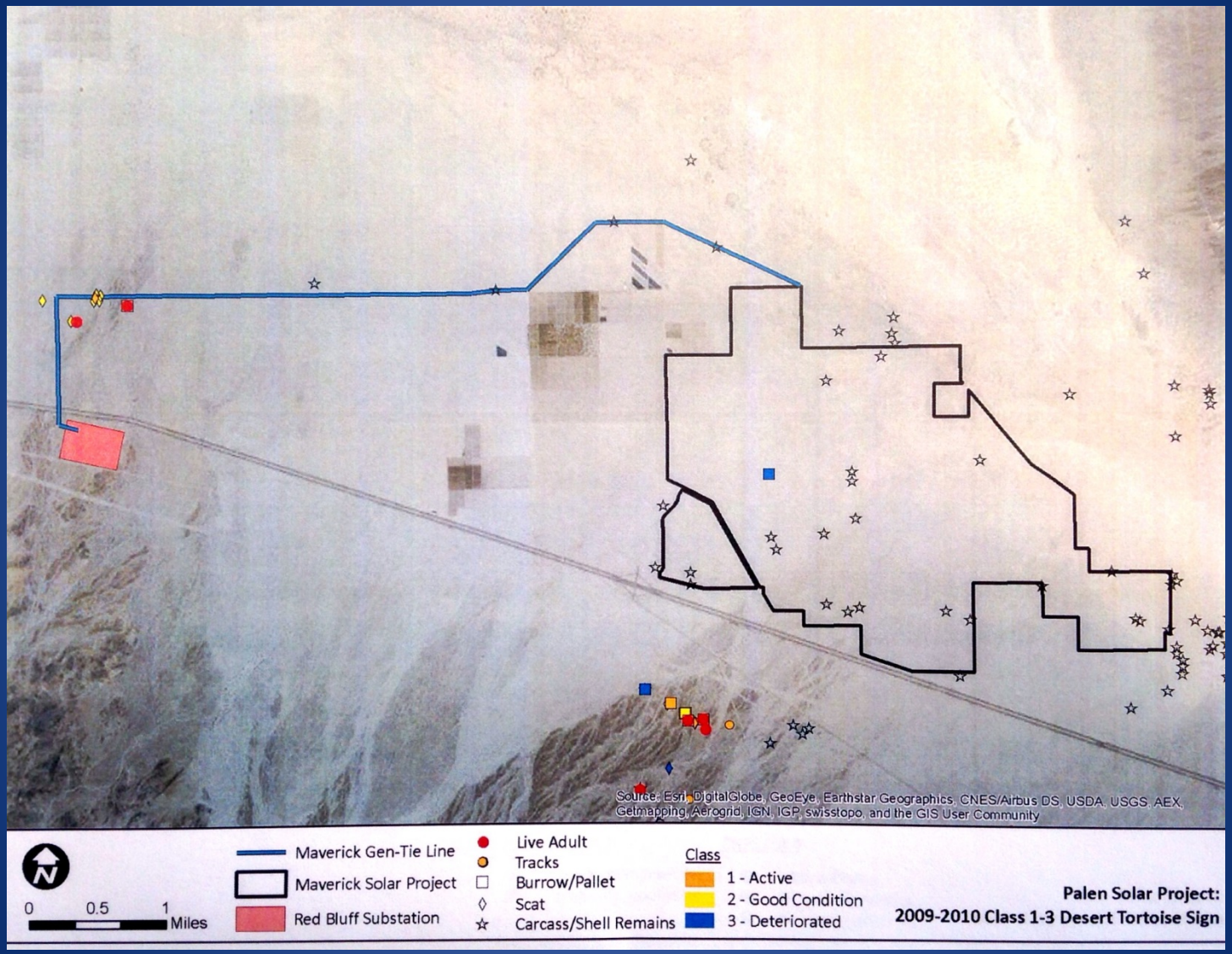
2011 Biological Opinion

Biological Resources

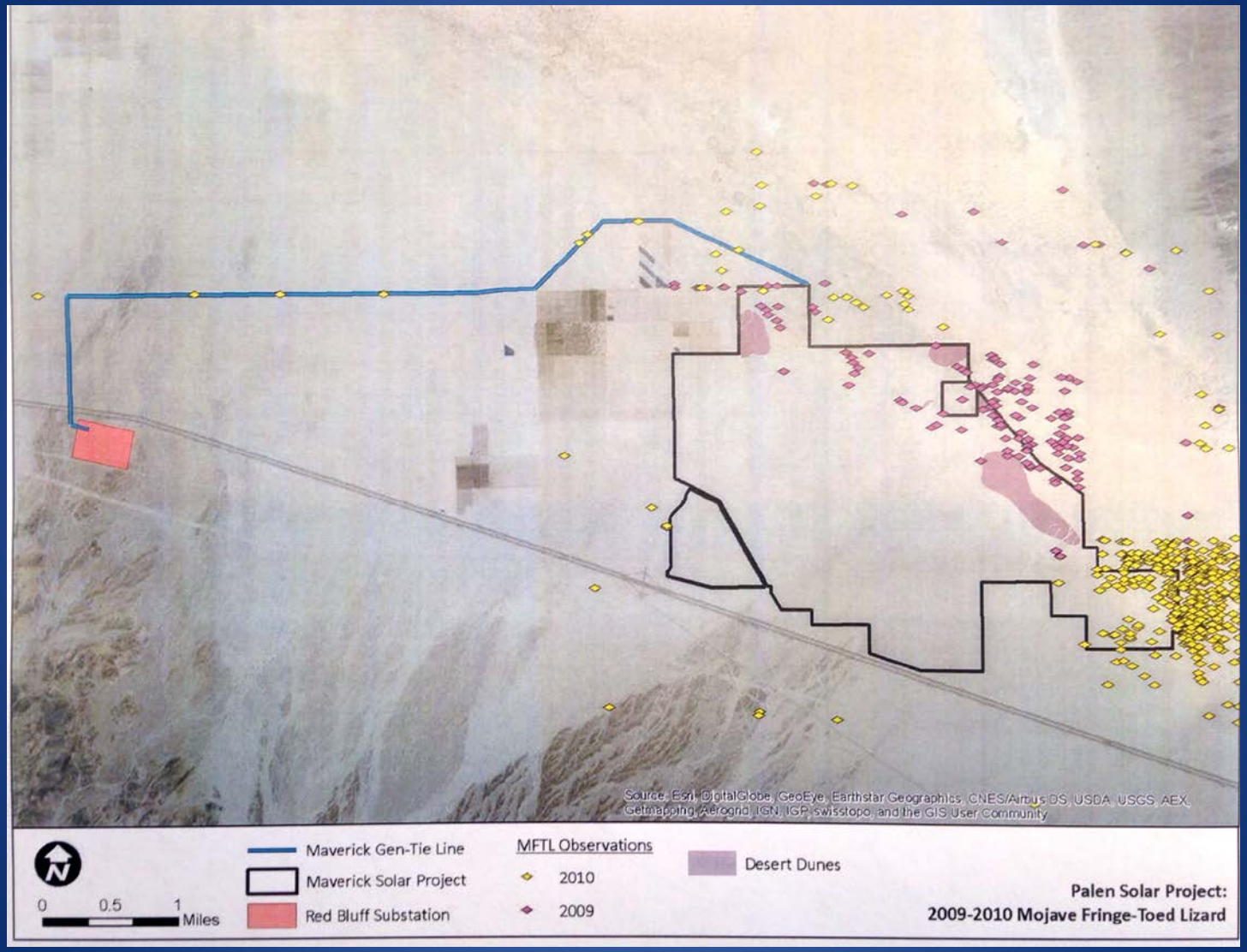
- Site extensively surveyed for avian & bat species in 2013-2014 for PSEGS
  - Bird Use Count (BUC) Surveys (large birds including raptors & vultures)
  - Small Bird Count (SBC) Surveys
  - Mist Net Surveys (small birds)
  - Gila Woodpecker & Elf Owl Assessments
  - Winter Golden Eagle Surveys
  - Golden Eagle Nest Surveys

Biological Resources (continued)

- Golden Eagle Prey Abundance Surveys
- Burrowing Owl Surveys
- Agricultural Pond Surveys (Shorebirds, Waterbirds, and Waterfowl)
- Nocturnal Radar Surveys (migrants)
- Bat Roost Surveys & Acoustic Bat Surveys



Desert Tortoise



Fringe-toed Lizard

Visual Resources

PSPP (solar trough) was found to have:

- Low to moderate contrast with background viewpoints (ex. Highway 177 at edge of Joshua Tree Wilderness and I-10 interchange at Desert Center)
- Moderate to strong contrast foreground viewpoint (ex. Corn Springs Road at the Chuckwalla Mountains Wilderness and along the I-10 near the project)

Visual Resources (continued)

PSEGS (solar power tower) was found to have:

- Larger visual impacts compared to other solar technologies because of the tall and brightly illuminated receiver towers, light from relatively small-scale existing facilities has been observed at distances of 25 miles
- Nighttime lighting for safety and security and FAA lighting of the towers would be visible to nearby residences and recreationists in surrounding wilderness areas

Visual Resources (continued)

Palen Solar PV project would be less visible than the previous iterations of the project due to the shorter height of the panels (10’ max) and less reflectivity from the panel face.

Risk: potential lake effect that may attract migrating birds. Studies are on-going at other solar projects to validate.

Proposed Schedule

ACTIVITY	DATE
EDF RE files Revised POD with BLM	December 2015
Complete bio surveys (concurrent plants and wildlife)	April – June 2016
Establish Native American consultation schedule	May 2016
Prepare Admin. Draft Supplemental EIS	May – June 2016
Public Workshops (informal scoping)	May – June 2016
Draft SEIS published	August 2016
Draft Supplemental EIS comment period (assume 90 days for LUPA)	Sept. - Nov. 2016
Community Workshops on Draft SEIS	Sept. – Oct. 2016
Prepare Admin. Final SEIS	Dec. 2016 - Jan. 2017
Final Supplemental EIS published	March 2017
30 day Availability of Final SEIS (and Gov Consistency if required for Plan Amend.)	April 2017
Complete Programmatic Agreement	May 2017
Issue ROD and ROW Agreement	June – July 2017
Notice to Proceed with Construction	Late 2017

QUESTIONS?