GeoPlanner™

Mobile Phone Carrier Report

Posey Solar

Prepared on Behalf of
Posey Solar LLC

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1. Introduction

Comsearch has developed and maintains comprehensive technical databases containing information on licensed mobile phone carriers across the US. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service (AWS), Personal Communication Service (PCS), 700 MHz Band, Wireless Communications Service (WCS), and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties.

This report focuses on the potential impact of a proposed solar farm on mobile phone operations in and around the project area. Posey Solar, LLC is proposing to construct and place in utility service an electric generation facility located west of Evansville, Indiana. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (380 MW dc).

2. Summary of Results

Methodology
Our mobile phone analysis was performed using Comsearch's proprietary carrier database, which is derived from a variety of sources including the Federal Communications Commission (FCC). Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. Then we compiled a list of all mobile phone carriers in the main counties that intersect the solar farm. A depiction of the proposed solar farm in Posey County appears below.

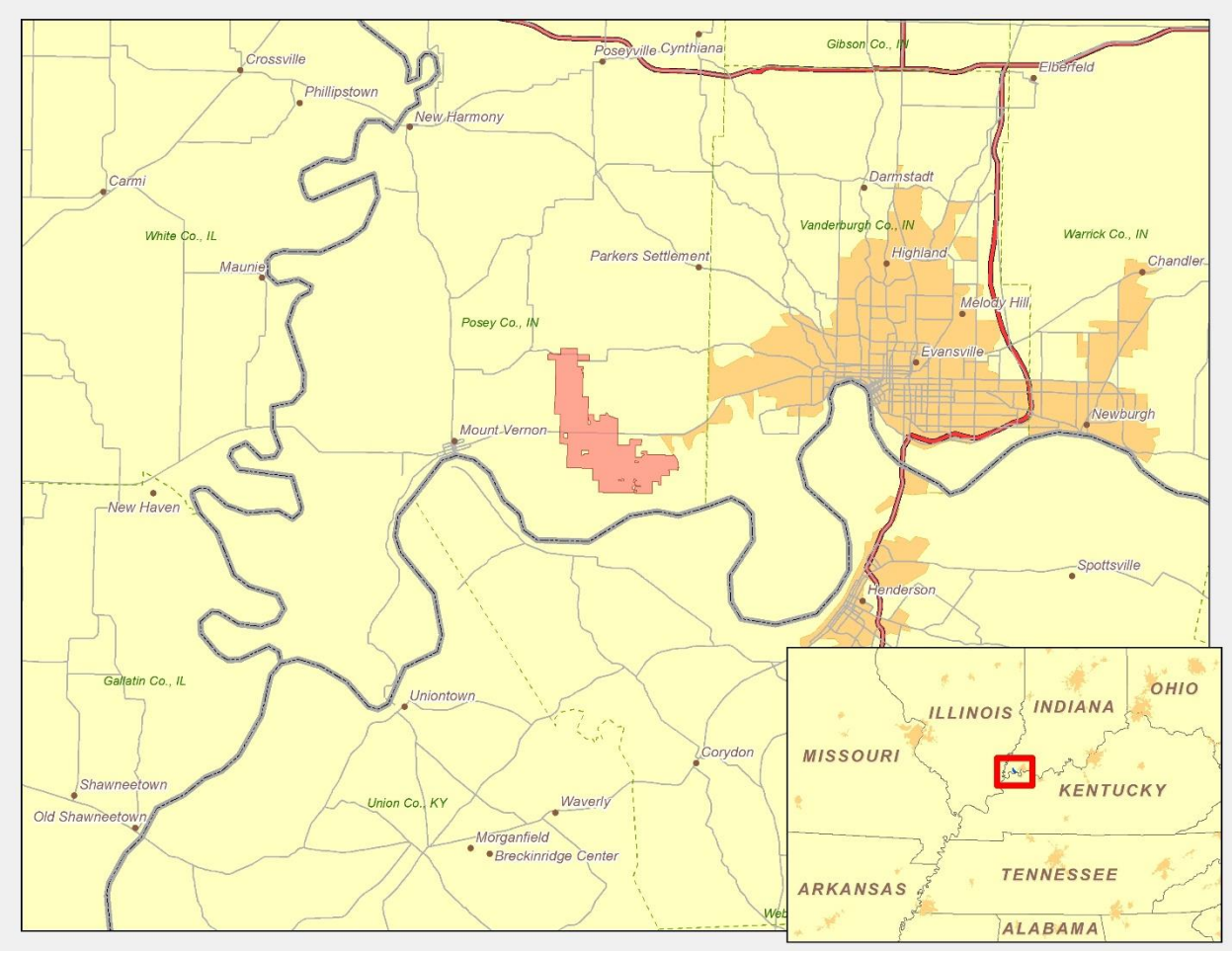

Figure 1: Solar Farm and Neighboring Communities

Results
The proposed Posey Solar Energy Center is located in Posey County, Indiana which is within two miles of Henderson County, Kentucky, and Vanderburgh County, Indiana. We have identified the type of service, channel block, market ID and FCC callsign for each carrier in these three counties. A description of the various service types and geographic market areas is below with a summary table on the following page.

AWS
AWS licensees won their spectrum in an auction that started in August 2006. The licensees are authorized by 734 Cellular Market Areas (CMA) for Block A, 176 Economic Areas (BEA) for Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Blocks D, E and F. This spectrum at 1.7 and 2.1 GHz was allocated for mobile broadband and advanced wireless services. Partitioning and leases are permitted in the band.

Cellular
Licensees are authorized by Metropolitan and Rural Statistical Areas, also known as CMAs. Unserved areas can be covered by licensees other than the original A or B block licensee. To determine the most realistic coverage, we compiled the Cellular Geographic Service Areas (CGSA) from the 32 dBu contours defined by Part 22.911(a) of the FCC rules. Mobile services are provided at 800 MHz and partitioning and leases are permitted in the band.

PCS
There have been nine auctions for this band, with the last one being held in August 2008. Licensees are authorized by 51 Major Trading Areas (MTA) for Blocks A and B, 493 Basic Trading Areas (BTA) for Blocks C through F, and 176 Economic Areas (EA) for Block G. This band has been heavily partitioned and disaggregated both by counties and by smaller polygons within counties (known as undefined areas or partial counties). The 1.9 GHz PCS carriers provide mobile services and leases are permitted in the band.

700 MHz Band
Originally used for analog television broadcasting, this band consists of an upper and lower band, each having its own set of frequency blocks. There have been three auctions in this band with the last one (Auction 73) being held in 2008 and mobile phone carriers eventually winning licenses for Blocks A, B, and C of the Lower 700 MHz band and Block C of the Upper 700 MHz band. Licensees are authorized by 176 Economic Areas (EA) for Lower Block A, 734 Cellular Market Areas (CMA) for Lower Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Upper Block C. Partitioning and leases are permitted in the band.

WCS
Mobile services provided in the 2.3 GHz band occupy frequency blocks above and below the spectrum allocated for Satellite Digital Audio Radio Service (SDARS) from 2320 MHz to 2345 MHz. WCS licensees are authorized by 52 Major Economic Areas (MEA) for Blocks A and B and 12 Regional Economic Area Groupings (REAG) for Blocks C and D. Partitioning and leases are permitted in the band.

Service[1]	Mobile Phone Carrier	Channel Block	County	Market ID	Callsign
AWS	AT&T	A	Henderson, Posey, and Vanderburgh	CMA119	WQGD489
AWS	Verizon	B	Henderson, Posey, and Vanderburgh	BEA069	WQGA957
AWS	AT&T	C	Henderson, Posey, and Vanderburgh	BEA069	WQGT878
AWS	T-Mobile	D	Henderson, Posey, and Vanderburgh	REA004	WQGB377
AWS	T-Mobile	E	Henderson, Posey, and Vanderburgh	REA004	WQSL582
AWS	Verizon	F	Henderson, Posey, and Vanderburgh	REA004	WQGA718
Cellular	AT&T	A	Henderson, Posey, and Vanderburgh	CMA119	KNKA517
Cellular	Verizon	B	Henderson, Posey, and Vanderburgh	CMA119	KNKA410
PCS	AT&T	A	Henderson, Posey, and Vanderburgh	MTA026	KNLF251
PCS	AT&T	A	Henderson, Posey, and Vanderburgh	MTA026	WPOI215
PCS	Sprint	B	Henderson, Posey, and Vanderburgh	MTA026	KNLF252
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQEM940
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQHG455
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQHG457
PCS	T-Mobile	D	Henderson, Posey, and Vanderburgh	BTA135	KNLH400
PCS	T-Mobile	E	Henderson, Posey, and Vanderburgh	BTA135	KNLH401
PCS	Verizon	F	Henderson, Posey, and Vanderburgh	BTA135	KNLG697
PCS	Sprint	G	Henderson, Posey, and Vanderburgh	BEA069	WQKT283
700 MHz	T-Mobile	Lower A	Henderson, Posey, and Vanderburgh	BEA069	WQIZ562
700 MHz	AT&T	Lower B	Henderson, Posey, and Vanderburgh	CMA119	WQJU527
700 MHz	AT&T	Lower C	Henderson, Posey, and Vanderburgh	CMA119	WPWU913
700 MHz	AT&T	Lower D	Henderson, Posey, and Vanderburgh	EAG703	WPZA237
700 MHz	DISH Network	Lower E	Henderson, Posey, and Vanderburgh	BEA069	WQJZ211
700 MHz	Verizon	Upper C	Henderson, Posey, and Vanderburgh	REA004	WQJQ692
WCS	AT&T	A	Henderson, Posey, and Vanderburgh	MEA023	KNLB230
WCS	AT&T	A	Henderson, KY	MEA023	WPSL360
WCS	AT&T	B	Henderson, Posey, and Vanderburgh	MEA023	KNLB231
WCS	AT&T	B	Henderson, KY	MEA023	WPSL354
WCS	AT&T	C	Henderson, Posey, and Vanderburgh	REA004	KNLB240
WCS	AT&T	D	Henderson, Posey, and Vanderburgh	REA004	KNLB241
AWS	AT&T	A	Henderson, Posey, and Vanderburgh	CMA119	WQGD489

[1] AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
700 MHz: Commercial Mobile Phone at 700 MHz
WCS: Wireless Communication Service at 2.3 GHz

Service[1]	Mobile Phone Carrier	Channel Block	County	Market ID	Callsign
AWS	Verizon	B	Henderson, Posey, and Vanderburgh	BEA069	WQGA957
AWS	AT&T	C	Henderson, Posey, and Vanderburgh	BEA069	WQGT878
AWS	T-Mobile	D	Henderson, Posey, and Vanderburgh	REA004	WQGB377
AWS	T-Mobile	E	Henderson, Posey, and Vanderburgh	REA004	WQSL582
AWS	Verizon	F	Henderson, Posey, and Vanderburgh	REA004	WQGA718
Cellular	AT&T	A	Henderson, Posey, and Vanderburgh	CMA119	KNKA517
Cellular	Verizon	B	Henderson, Posey, and Vanderburgh	CMA119	KNKA410
PCS	AT&T	A	Henderson, Posey, and Vanderburgh	MTA026	KNLF251
PCS	AT&T	A	Henderson, Posey, and Vanderburgh	MTA026	WPOI215
PCS	Sprint	B	Henderson, Posey, and Vanderburgh	MTA026	KNLF252
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQEM940
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQHG455
PCS	Verizon	C	Henderson, Posey, and Vanderburgh	BTA135	WQHG457
PCS	T-Mobile	D	Henderson, Posey, and Vanderburgh	BTA135	KNLH400

Table 1: Mobile Phone Carriers within Two Miles of the Solar farm

FCC-Licensed Sites

For competitive and confidentiality reasons, most mobile phone carriers' individual sites are not licensed with the FCC. However, in the cellular band, if a base station extends the existing Cellular Geographic Service Area (CGSA), then it must be recorded with the FCC. We identified two cellular sites within two miles of the Posey Solar Project Area. Figure 2 on the next page depicts their locations in relation to the area of interest and Table 2 contains the technical parameters on the FCC license.

Callsign	Licensee	Structure Height to Tip (m)	ASR Number	Location Address	Latitude (NAD83)	Longitude (NAD83)
KNKA517	AT&T	94.5	1026910	3400 BUFKIN SPRINGFIELD ROAD	37.988861	-87.848750
KNKA410	Verizon	91.4	1208231	10481 Lower Mt. Vernon & Ubelhack Rd	37.923889	-87.728056

Table 2: FCC-Licensed Mobile Phone Sites

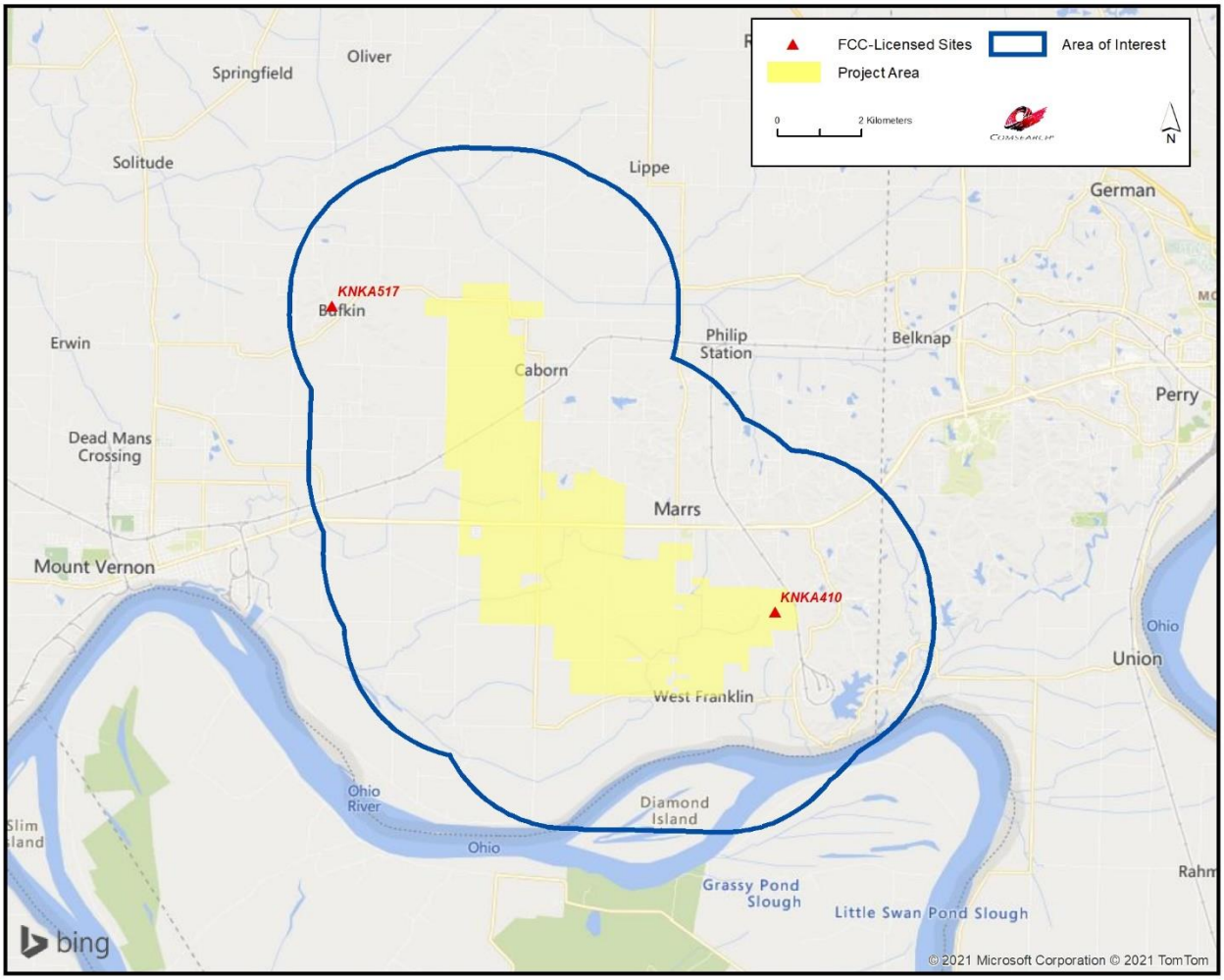

Figure 2: FCC-Licensed Mobile Phone Sites within two Miles of the Project Area

Impact Assessment and Distance Setback Requirements

Mobile cellular phone networks are typically unaffected by the presence of a solar farm because they are designed to operate reliably in a non-line-of-sight (NLOS) environment using multiple base transmitter stations or cell towers that cover a large geographic area. Additionally, these networks are designed with coverage overlap such that if a mobile unit is unable to make a connection to one base station, the network would handoff the mobile unit to an adjacent base station to maintain the connection. Furthermore, the height of the proposed solar panels relative to the antenna height of a typical base transmitter station is significantly lower, raising to a maximum of 15 feet above ground level. Consequently, any signal blockage caused by the solar farm does not materially degrade the reception because the end user would receive signals from neighboring transmitter locations. Therefore, reliable mobile phone service is made possible even in places that are congested with larger structures such as downtown urban areas, and we do not anticipate any significant harmful effect to mobile phone services in the solar farm project area.

3. Recommendation

For the cellular towers located within the project area, no setback distance is required from an interference standpoint due to the higher frequencies in which they operate within the UHF band. Electromagnetic interference (EMI) from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency operation of the inverter, EMI does not normally extend above 1 MHz. Based on the frequency range for the mobile phone licenses identified in the area from 700 MHz – 2.3 GHz, we do not anticipate any harmful interference impact on mobile phone operations due to EMI from the Posey Solar project. No mitigation techniques or additional recommendations are required.

4. Contact Us

For questions or information regarding the Mobile Phone Carrier Report, please contact:

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