

# WITH GREAT POWER COMES GREAT RESPONSIBILITY

Rays of hope for carbon reduction



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**W**ith a steep decline in the cost for materials required for renewable energy construction, the U.S. is experiencing an energy boom in the utility scale solar market with a rapidly growing footprint across the landscape of our country. Solar energy is one of the fastest ways to reduce carbon emissions when these projects are sited responsibly. As of early 2023, approximately 6% of the United States' energy production is from solar and over half of newly generated energy capacity is expected to be from solar in 2023. Currently, the U.S. is the second-largest global solar market in the world in terms of cumulative and annual installations.

With 16 states generating more than 5% of their electricity from solar energy, Georgia ranks seventh for solar capacity in the U.S. With just shy of 6% of the state's electricity generated by solar, up to 600,000 homes can be powered by this renewable form of energy. In Georgia, over 5,000 mW of solar have been installed to date with approximately 800 mW installed in 2022. The solar industry is a 5.6-billion-dollar market in Georgia with over 800 million dollars invested in 2022.





### Habitat For More than Humanity

Although it is important for alternative varieties of clean energy to be developed and expanded in order to reduce our reliance on fossil fuels, this task must be done responsibly with consideration of our natural resources at the top of the priority list. Many states do not have special councils or committees that ensure utility scale solar projects are sited responsibly which means that burden must be carried by a partnership of key players to include developers, consultants working on behalf of developers, federal and state agencies, and local agencies and governments. When it comes to responsible siting of utility-scale solar projects, it is up to these partnerships to ensure wildlife, protected species and their habitats are not permitting barriers or an afterthought, but a primary consideration during feasibility studies, siting and the land acquisitions processes.

In Georgia, one species becoming more and more familiar with the state's hasty solar expansion is the Gopher Tortoise (*Gopherus polyphemus*). The state reptile is a remarkable animal considered to be a keystone species whose burrows provides

homes and refuge for hundreds of other commensal wildlife species including a number of federally and state protected species such as the eastern indigo snake (*Drymarchon couperi*) and gopher frog (*Lithobates capito*).

Averaging 10 to 12 inches, adult gopher tortoises can tip the scales at 10 pounds. Their underground burrows are dug to depths of 10 feet or more and can traverse up to 30 feet in length. These slow-moving reptiles excavate homes into the sandy soils of the southeastern United States in the xeric long-leaf pine and wire grass communities that continue to be threatened by development. Therein lies the conflict. Often, the sandy and less arable soils of the state provide the more cost-effective solutions sought by the land acquisition teams working with solar developers to site utility scale solar projects.

Government agencies such as the U.S. Fish and Wildlife Service and the Georgia Department of Natural Resources (GDNR) are often inundated with the influx of requests for consultation for utility projects and more increasingly, solar projects. More than ever, a thorough effort into the siting process prior to consultation can lead to more efficient and productive communication for successful project delivery in which all can benefit. Environmental consultants can play a key role in coordinating research, studies and consultation with agencies and act as a knowledgeable liaison with seasoned subject matter experts.

When approached by a developer seeking support for a proposed utility-scale solar project, having an experienced environmental consultant involved early in the siting process often leads to a more clearly defined and realistic schedule, responsibly sited project and overall cost-effective project delivery.

### What Does this Process Look Like?

Our first recommendation to a developer is to conduct a "Critical Issues Analysis." This desktop-based report utilizes publicly and subscription-based internet databases to identify any potential constraints, concerns, or to recommend a more specific study into a particular resource area prior to land acquisition and design. Databases and information compiled typically include information on streams (National Hydrology Dataset), wetlands (U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory), federally protected species and critical habitats (USFWS's Information for Planning and Conservation), state-protected species (State Department of Natural Resources), soils, prime farmland and farmland of statewide importance (Natural Resources Conservation Service), archaeological resources (State Historic Preservation Office), historic architecture, documented hazardous waste sites, existing infrastructure, etc.

Using our previously discussed example species, the gopher tortoise, our critical issues analysis typically examines databases that identify both the potential for the species to occur and soil map units that may be preferred by the tortoise.





With this existing information, our next recommendation to a developer would be to mobilize a team of ecologists to conduct a habitat assessment which typically occurs concurrently with a wetland delineation of a potential site. If the habitat and tortoise burrows are observed during the habitat assessment, that would indicate it is time to begin coordinating with the respective agency responsible for the conservation of that animal. For the gopher tortoise in Georgia, that responsibility lies with the GDNR. A species-specific survey would be required to understand and document the distribution of tortoises (or other protected species). Species-specific surveys must be conducted with coordination of the responsible agency to ensure all necessary permits are required, survey methodologies are approved and optimal surveys windows are identified. Once results from the targeted species survey are determined, the time for teamwork truly begins. This protected species data is then provided as a constraints layer to each of the project stakeholders to include managers, engineers, designers, construction, land, etc.

**Avoidance.** The goal for impacts to natural resources is zero. For tortoises, the best-case scenario for them is to design the collection lines, substations, solar arrays, battery storage facilities and access roads around the known burrows. There are measures during construction that can be implemented to protect burrows from accidental collapse or accidental mortality during construction activities.

**Minimization.** If all burrows cannot be avoided completely, minimizing the impacts to the least amount practicable is recommended. At this stage, it is time to re-consult with the agency to propose alternative options for project implementation and conservation.

**Mitigation.** Requests are often made to re-locate or translocate gopher tortoises in Georgia. This is a last resort and is typically more successful if relocating a small number of tortoises. When it comes to excavating and relocating tortoises from a project site, the ideal situation is to translocate tortoises to suitable habitat within the property or adjacent to the project site. This is important to consider during the land acquisition process. Relocated gopher tortoises are often more successful and experience lower rates of mortality associated with relocations if they are done near their existing locations. Temporary enclosures are set up with standard silt fence, and it is recommended that tortoises overwinter at least one season within the enclosure to ensure burrowing and survival. Once construction is completed, the enclosure can be removed, and tortoises are free to move around at their will.

This is only one example of a protected species that is threatened with continued habitat loss now more than ever. There are thousands of other plants and animal species that face these challenges just in the United States alone. As we harness the sun's energy to slow the human influence on climate change and accelerate toward a future built on clean energy, it is imperative that we aren't sacrificing or overlooking our natural areas or the diversity of life that inhabits them. Partnerships and collaboration are the key to a successful transition into the new world of clean energy. 🌱



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