

**Research Plan: Public Chapter 1043, Acts of 2022, Utility-Scale Solar Energy Development**

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Lead Researcher: Jennifer Barrie

Support:

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Deputy Executive Director Approval:      Initial:                      Date:

Executive Director Approval:              Initial:                      Date:

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**Purpose:**

Study the overall effects of utility-scale solar energy development in Tennessee. Additionally, study the installation of solar energy generation and storage on the property of residential electric customers, for the purpose of determining any necessary consumer protections.

**Background:**

According to its 2021 annual report, the Tennessee Valley Authority (TVA) expects “to add 10,000 megawatts of solar energy by 2035, representing more than a 15-fold increase from today’s operating solar.” The Tennessee Farm Bureau has identified particular concerns about rapid growth in utility-scale solar installations, which are those installations that are larger than typical residential or commercial installations and that have a generating capacity of at least one megawatt. Tennessee Farm Bureau says that new Tennessee utility-scale solar production “facilities could utilize thousands of acres of farmland for the siting of solar panels and for easements to run transmission lines. Solar facilities can be a major income source for landowners. To this point, many electricity providers are contracting with private companies to install and operate solar facilities and contract with the electrical provider. In many cases, the land is leased for a period of time to locate the solar panels and distribution lines. Nationwide, lease rates range from \$300 to \$2,000 per acre per year. Factors that can affect the lease rate include project size, land prices and substitute uses, and regional supply and demand of solar sites. Regardless of the lease rate, the return per acre annually for a long-term lease can exceed income from other uses.”<sup>1</sup>

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<sup>1</sup> Email correspondence from Assistant Director Laura Leigh Harris, Tennessee Farm Bureau, May 31, 2022.

The Tennessee Farm Bureau also says that “even though solar facilities can appear to be a source of income for landowners, there are many unknowns. Very few laws exist to protect landowners from exploitation, damages and unexpected monetary losses. Concerns include decommissioning, long term effects to the land, liability for clean-up after a natural disaster, and long-term financial stability of solar facility companies.”<sup>2</sup> For example, since these facilities are almost always located in agricultural areas, do they have any negative effects on neighboring farms? What rights do nearby property owners have regarding the installation of new high-voltage transmission lines across their property? Other stakeholders have argued that greater consumer protection may be warranted in the residential solar market.

In response to these concerns, Public Chapter 1043, Acts of 2022, directs TACIR to perform a study of the overall effects of utility-scale solar energy development in Tennessee. It also directs TACIR to study the installation of solar energy generation and storage on the property of residential electric customers, for the purpose of determining any necessary consumer protections. The Act directs that by September 30, 2023, TACIR shall report its findings and recommendations, including any proposed legislation, to members of the energy, agriculture, and natural resources committee of the senate and members of the agriculture and natural resources committee of the house of representatives.

Tennessee state law defines a solar energy system as “any device, mechanism, structure, apparatus, or part thereof, whose primary purpose is to collect solar energy and convert and store it for useful purposes including heating and cooling buildings or other energy saving processes, or to produce generated power by means of any combination of collecting, transferring, or converting solar generated energy.”<sup>3</sup>

According to the US Energy Information Administration (EIA), as of July 15, 2021, “[s]olar photovoltaic (PV) facilities provided about 4% of Tennessee’s renewable generation in 2020. About three-fourths of that solar generation was at utility-scale facilities that have a capacity of one MW or larger. By early 2021, utility-scale solar power sites with a combined generating capacity of 182 megawatts were operating in the state. Most of the state’s utility-scale solar PV generating facilities are located in southwestern Tennessee. The state’s largest, a 53-megawatt solar farm, came online in December 2018. A new 150-megawatt solar farm is scheduled to begin operating in the state at the end of 2021. In 2020, about one-fourth of Tennessee’s solar power

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<sup>2</sup> Email correspondence from Assistant Director Laura Leigh Harris, Tennessee Farm Bureau, May 31, 2022.

<sup>3</sup> Tennessee Code Annotated, Section 66-9-203.

generation came from customer-sited, small-scale (less than one megawatt each) solar PV installations that are located mostly on residential and business rooftops.”<sup>4</sup>

Staff will complete the following tasks, as directed by Public Chapter 1043, Acts of 2022, as well as others identified in the course of this research:

1. Short-term and long-term projections on the amount of acreage needed to accommodate utility-scale solar development;
2. Hazardous waste as defined in § 68-212-104, that may exist in photovoltaic modules, energy storage system batteries, or other equipment used in utility-scale solar energy development;
3. Federal regulatory requirements regarding decommissioning and managing end-of-life photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar energy development;
4. Statutory and regulatory requirements in other states regarding decommissioning and managing end-of-life photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar energy development;
5. Financial assurances and responsibilities of owners and operators in the event of natural disasters, pollution from solar energy system failures, decommissioning of a solar energy system, and end-of-life management of photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar development;
6. Which federal and state regulatory agencies are responsible for certification and oversight to determine the proper installation and operation of utility-scale solar energy systems;
7. The needed state infrastructure to facilitate the collection, transport, and disposal of utility-scale solar energy systems;
8. Implications of utility-scale solar energy systems on the local property tax base;
9. Local zoning and regulatory templates to ensure consistency throughout the state regarding local siting of utility-scale solar energy development;

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<sup>4</sup> [U.S. Energy Information Administration - EIA - Independent Statistics and Analysis.](#)

10. The importance of private property rights and the ability of a landowner to use or transfer interests in property;
11. The importance of a variety of energy sources in this state's economic and community development recruiting efforts;
12. The efforts of the Tennessee Valley Authority and local power companies to offer utility-scale sustainable power options; and
13. Required lease terms and conditions to protect future property use and rights of lessors in the event of default or termination of a lease.

The study must also examine, for the purpose of determining any necessary consumer protections, the installation of solar energy generation and storage on the property of residential electric customers.

### **Step 1. Define the Problem**

Although utility scale solar installations appear to be a source of income for landowners, they pose potentially different challenges compared to residential and commercial installations because of their need for large land acreage and usually new transmission lines. Stakeholders question their short- and long-term effects on land-use and property rights as well as financial effects on individual landowners and fiscal effects on local governments. Additionally, greater consumer protection may be warranted in the residential solar market.

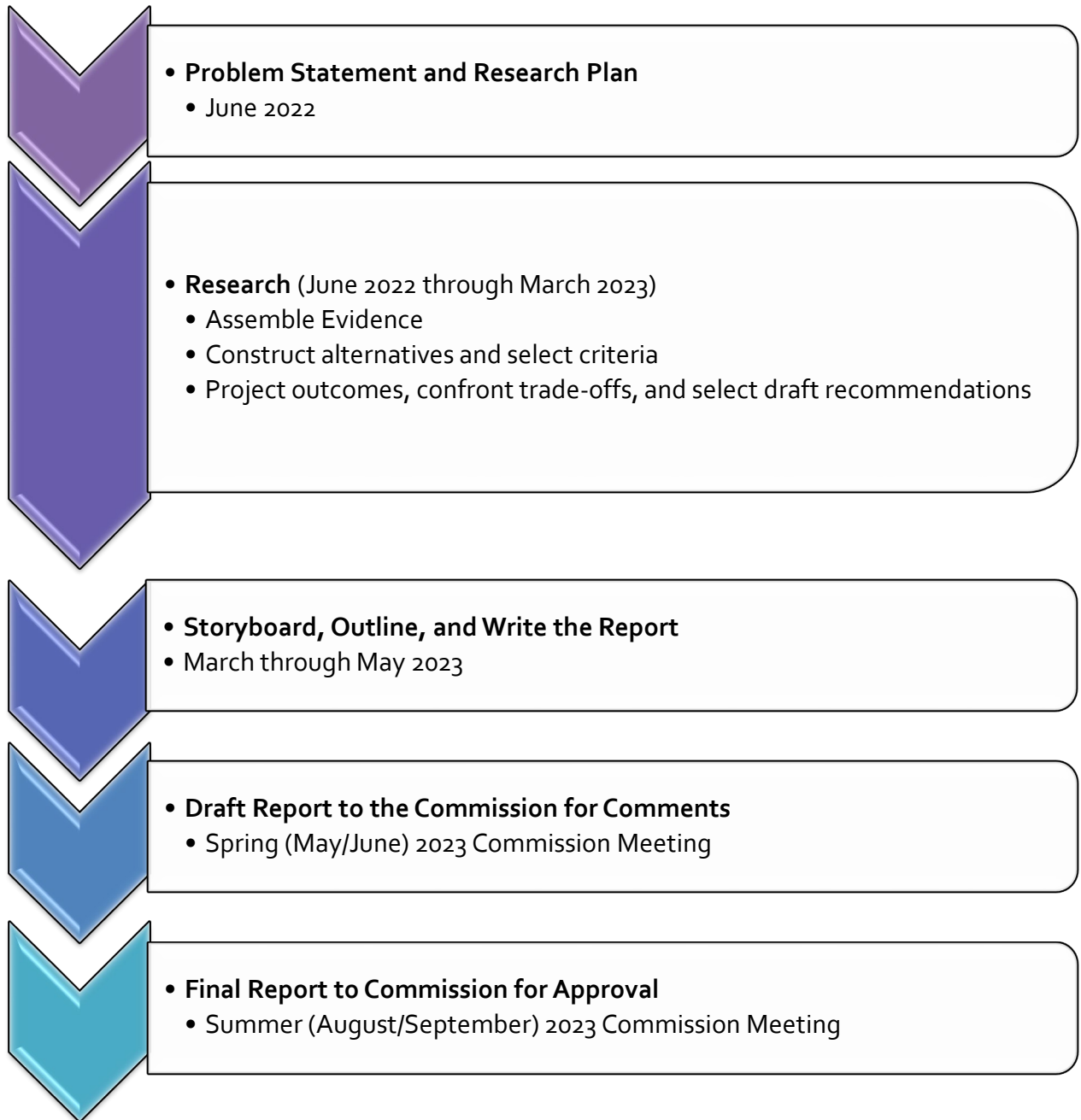
### **Step 2. Assemble Some Evidence**

- Review referred legislation, Public Chapter 1043, Acts of 2022 (Senate Bill 2797 and House Bill 2761) to understand what it directs the Commission to study.
  - Interview the sponsors of the legislation and any other members of the General Assembly who have an interest in the bill.
  - Review committee hearings on the bill and summarize comments and concerns of committee members, the bill sponsors, and others speaking for or against the bill.
  - Review any similar bills from previous general assemblies, including relevant committee hearings.
  - Review any relevant fiscal notes. If appropriate, consult with the Fiscal Review Committee and follow up with agencies submitting

support forms to determine the estimated cost, method, and rationale.

- Interview other stakeholders to determine what is driving this issue. These include, but are not limited to representatives of
  - Tennessee Farm Bureau,
  - Tennessee Valley Authority,
  - Tennessee Municipal Electric Power Association,
  - Tennessee Electric Cooperative Association,
  - Tennessee Solar Energy Industries Association (TenneSEIA),
  - Solar Energy Industries Association,
  - Companies with existing utility-scale installations,
  - Tennessee Regulatory Authority,
  - Department of Economic and Community Development,
  - Tennessee Municipal League, and
  - Tennessee County Services Association.
- Review Tennessee’s statutes, regulations, case law, and attorney general’s opinions relevant to utility-scale solar and other topics germane to the study.
- Review similar laws, regulations, and initiatives in other states.
- Review relevant federal statutes and regulations.
- Review potential constitutional issues.
- Review relevant literature and seek opinions of subject matter experts.
- Gather and review relevant data from existing utility-scale solar projects in the United States.

Review the already-existing utility-scale solar projects in Tennessee.





# State of Tennessee

## PUBLIC CHAPTER NO. 1043

### SENATE BILL NO. 2797

By Walley, Lundberg, Bowling, Campbell, Crowe, Niceley, Reeves, Rose

Substituted for: House Bill No. 2761

By Gant, Vital, Reedy, Sherrell, Travis,

AN ACT to amend Tennessee Code Annotated, Title 4, Chapter 5; Title 6; Title 13; Title 65; Title 66; Title 67 and Title 68, relative to solar energy development.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. (a) The Tennessee advisory commission on intergovernmental relations (TACIR) is directed to perform a study of the overall effects of utility-scale solar energy development in this state. The study must include, but not be limited to, examinations of:

(1) Short-term and long-term projections on the amount of acreage needed to accommodate utility-scale solar development;

(2) Hazardous waste as defined in § 68-212-104, that may exist in photovoltaic modules, energy storage system batteries, or other equipment used in utility-scale solar energy development;

(3) Federal regulatory requirements regarding decommissioning and managing end-of-life photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar energy development;

(4) Statutory and regulatory requirements in other states regarding decommissioning and managing end-of-life photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar energy development;

(5) Financial assurances and responsibilities of owners and operators in the event of natural disasters, pollution from solar energy system failures, decommissioning of a solar energy system, and end-of-life management of photovoltaic modules, energy storage system batteries, and other equipment used in utility-scale solar development;

(6) Which federal and state regulatory agencies are responsible for certification and oversight to determine the proper installation and operation of utility-scale solar energy systems;

(7) The needed state infrastructure to facilitate the collection, transport, and disposal of utility-scale solar energy systems;

(8) Implications of utility-scale solar energy systems on the local property tax base;

(9) Local zoning and regulatory templates to ensure consistency throughout the state regarding local siting of utility-scale solar energy development;

(10) The importance of private property rights and the ability of a landowner to use or transfer interests in property;

(11) The importance of a variety of energy sources in this state's economic and community development recruiting efforts;

(12) The efforts of the Tennessee valley authority and local power companies to offer utility-scale sustainable power options; and

(13) Required lease terms and conditions to protect future property use and rights of lessors in the event of default or termination of a lease.

(b) The study must also examine, for the purpose of determining any necessary consumer protections, the installation of solar energy generation and storage on the property of residential electric customers.

(c) It is the legislative intent that this study be conducted within TACIR's existing resources.

(d) On or before September 30, 2023, TACIR shall report its findings and recommendations, including any proposed legislation, to members of the energy, agriculture and natural resources committee of the senate and members of the agriculture and natural resources committee of the house of representatives.

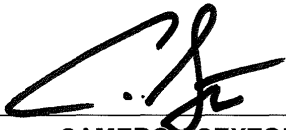
SECTION 2. This act takes effect upon becoming a law, the public welfare requiring it.



SENATE BILL NO. 2797

PASSED: April 27, 2022

  
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RANDY McNALLY  
SPEAKER OF THE SENATE

  
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CAMERON SEXTON, SPEAKER  
HOUSE OF REPRESENTATIVES

APPROVED this 11<sup>th</sup> day of May 2022

  
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BILL LEE, GOVERNOR