

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of Birch Solar)
1, LLC for a Certificate of Environmental)
Compatibility and Public Need to Construct a) Case No. 20-1605-EL-BGN
Solar-Powered Electric Generation Facility in)
Allen and Auglaize Counties, Ohio.)

DIRECT TESTIMONY OF

**Thomas E. Stewart
Consultant
Oilfield Policy Advisors LLC**

**on behalf of
Birch Solar 1, LLC**

May 4, 2022

/s/ Christine M.T. Pirik

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1 **1. Please state your name, current title, and business address.**

2 My name is Thomas E. Stewart. I am retired from a professional career as head of the Ohio
3 Oil and Gas Association (“Association”). I continue to provide advisory services on
4 matters related to energy development focused on crude oil and natural gas upstream
5 operations. Additionally, I participate in independent exploration and development
6 operations in several states. For this matter, my consulting business is Oilfield Policy
7 Advisors LLC, located at 20 Sylvan Ave., Asheville, NC 28801.

8
9 **2. Please summarize your educational background and professional experience.**

10 My resume/profile is attached to my testimony as Attachment TES-1. In summary, my
11 professional life has been entirely spent in the oil and gas field principally as the executive
12 vice president of the Ohio Oil and Gas Association. I served as the Association’s chief of
13 staff, industry spokesperson, and as the members’ public policy advocate. During my
14 tenure, I extensively worked on numerous public policy matters including several episodes
15 related to idle and orphan wells. Prior to that service, I worked in the eastern Ohio oilfield
16 as an oil and gas producer and provider of contract drilling services.

17
18 **3. On whose behalf are you offering testimony?**

19 I am testifying on behalf of Birch Solar 1, LLC (“Applicant” or “Birch Solar”), which is
20 seeking to develop the proposed Birch Solar facility (“Project”) in Allen and Auglaize
21 Counties, Ohio.

22
23 **4. What is the purpose of your testimony?**

24 The purpose of my testimony is to provide additional context, support, and clarification for
25 Birch Solar’s Application for a Certificate of Environmental Compatibility and Public
26 Need (“Certificate”), filed in Case No. 20-1605-EL-BGN on February 12 and 17, 2021, as
27 supplemented,¹ and further supplemented by responses to data requests that were received
28 from and filed in the docket (“Application”). Specifically, my testimony addresses the
29 Ohio Department of Natural Resources (“ODNR”) Idle and Orphan Well Plugging

¹ The Application was initially filed on February 12 and 17, 2021, and subsequently supplemented on: March 25, 2021; March 31, 2021; April 5, 2021; October 5, 2021; February 9, 2022; February 17, 2022; and May 4, 2022.

1 Program as it relates to the Engineering Constructability Report (“ECR”) that was filed as
2 the Supplemental Response to the Tenth Data Request from the Staff of the Ohio Power
3 Siting Board (“Board”) on December 30, 2021.

4
5 My testimony, together with the other witnesses for Birch Solar testifying in this case,
6 supports approval by the Board of Birch Solar’s application for a Certificate to construct
7 the Project.

8
9 **5. Please describe the history of your involvement with the Birch Solar Project?**

10 My consulting support service with the Birch Solar Project is to provide expertise on: 1)
11 historical development of the Northwest Ohio Trenton Oil and Gas Field a small portion
12 of which underlies the area proposed for construction of the Birch Solar Project; and 2) the
13 nature of orphaned oil and gas wells including matters related to the state-operated Ohio
14 (Idle and Orphan) Well Plugging Program. I have no roll or stake related to the
15 development of commercial solar energy other than my view that America’s best interests
16 are well served by developing all practical energy resources.

17
18 **6. Please explain your involvement with the review and investigation in the oil and gas
19 wells in the Project Area and the ECR.**

20 My involvement with the Project centered around the history behind the oil and gas fields
21 in Ohio and the ODNR Idle and Orphan Well Plugging Program as it relates to the Project
22 as referenced in the ECR.

23
24 Ohio, one of several oil and gas producing states situated within the Appalachian Basin,
25 has a storied history in American energy development. In 1860 (one year after the famous
26 Drake Well in Pennsylvania), the first commercial Ohio oil discovery occurred in shallow
27 reservoirs located near Macksburg in Washington County.

28
29 In 1884, the discovery of significant oil and gas in Hancock County kicked off a drilling
30 boom in northwestern Ohio that soon established the largest United States (“U.S.”) oilfield
31 at the time, known as the Lima Findlay Trenton Field.

1 The typical Trenton well was 1,100 to 1,400 feet in depth, depending on geographical
2 location. Characteristic of the time, cable tool rigs were constructed that used compression
3 drilling to create a bore hole from the surface to total depth in order to expose the reservoir
4 and provide a pathway for production. Once drilling was initiated, conductor casing made
5 of either wood or steel was inserted to a depth of 20 feet to assist hole integrity. At a depth
6 of approximately 600 feet, steel casing was inserted to isolate the well bore from shallow
7 rocks yielding water. From that point, a slightly smaller diameter hole was drilled deeper
8 into the Trenton. The well was “completed” if the operator determined that the well could
9 produce commercial oil and gas. A production casing string could have been run into the
10 well and set on top of Trenton for better well control. Most often the well was left uncased.
11 Often two-inch tubing was run to proximity of the Trenton and set in the hole on a packer
12 to isolate the producing zone and to assist production. Good wells simply flowed product
13 to surface under natural pressure. If pressure was insufficient or depleted, the walking beam
14 of the drilling rig or small pump jacks were used to actuate artificial lift using downhole
15 pumps. This completion procedure was consistent with methods used at the time on many
16 wells located in southeastern Ohio.

17
18 Many Trenton wells initially produced prolific volumes of oil and gas. However, the
19 relatively shallow depth of the reservoir limited natural down-hole pressure. Excessive
20 drilling activity driven by “rule of capture” economic competition squandered reservoir
21 drive. By 1910, activity in the Trenton Field was in steep decline as more promising
22 oilfields were discovered in the American mid-continent. Drilling activity within the
23 Trenton play was essentially dead by 1930.

24
25 At the time of peak development of the Trenton Field, there was no stable understanding
26 of petroleum engineering principles, proper well construction, or appropriate production
27 methods. Unlike in modern times (pre-1965), there was no public policy to incentivize
28 operators to protect correlative rights, practice rational well spacing, promote orderly
29 development practices, provide for public tracking of drilling activity, or, even, methods
30 to produce wells to sustain long-term reservoir integrity. The result was the Trenton play
31 was grossly over drilled. Little consideration was given to proper plugging and

1 abandonment procedures.

2
3 The problems that ensued from historic pre-regulatory activity, exists today in three of the
4 four quadrants of Ohio. A review of well development maps demonstrates that this
5 problem is not limited to the Trenton but is prevalent across eastern Ohio (See Attachment
6 TES-2, Figure 2). That is the reason the Ohio General Assembly, with strong industry
7 support, enacted the Idle and Orphan Well Plugging Program.

8
9 Ohio's Idle & Orphan Well Plugging Program was created in 1976 to plug improperly
10 abandoned oil and gas wells where no responsible owner exists. The enacting legislation
11 set aside a portion of the oil and gas mineral severance tax to fund the program. A key
12 objective was to rectify the plight of landowners who had abandoned wells on their
13 property and had no means to address the problem while also addressing imminent threats
14 to health, safety, and the environment. In 2018, the Ohio General Assembly enacted House
15 Bill 225, a statutory reform to the program to encourage more robust plugging activity. As
16 a result, annual funding from the oil and gas severance tax to the plugging program rose
17 from under \$1 million to nearly \$22 million. In addition, the federal government has
18 recently stated that a new program will provide an initial \$25 million grant to Ohio for
19 orphan well plugging and will be followed up with performance grants to Ohio of up to
20 \$95 million for plugging.

21
22 Significant long-term financial resources are available to ODNR to address problematic
23 orphan wells no matter where they are in the State. ODNR has sole and exclusive authority
24 to administer the State's oil and gas regulatory program including the State's well plugging
25 program. These resources can be counted on to sustain ODNR as they perform their
26 statutory duty to properly plug historic wells.

27
28 **7. Please explain how the ODNR Idle and Orphan Well Plugging Program relates to the**
29 **Birch Solar Project.**

30 The Birch Solar Project is in Shawnee Township, Allen County and Logan Township,
31 Auglaize County, Ohio. The Project Area lies above the Trenton Lima Pool that came

1 under development in 1888. Like much of the historic regional activity there is little well-
2 specific information available. The primary source publication “Report of the Geological
3 Survey of Ohio, Volume VIII, dated January 1906, (“Survey”) describes the following
4 (summarizing).

5
6 In Logan Township, Auglaize County, the “oil territory” is “very spotted.” The early wells
7 initial production was at 250 to 600 barrels of oil/day with subsequent efforts yielding less.
8 Between 1891 and 1889, the Survey reports 2,722 wells were drilled in Auglaize County
9 with an 84 percent success ratio. Well logs were not available; however, the Survey
10 reported that a well near St. Marys encountered the Trenton at 1,162 feet in depth. Orton,
11 Jr., Edward, The Trenton Limestone as a Source of Oil and Gas, Report of the Geological
12 Survey of Ohio, Volume VIII, January 1906, pages 85-86.

13
14 Allen County experienced some dramatic producers, but in Shawnee Township there were
15 multiple “small” pools of production in a limited length of land. Between 1891 and 1889,
16 the Survey reports that there were 1,924 wells drilled with an 83 percent success ratio. In
17 a sampling, the Trenton was encountered at depths ranging from 1,170 feet to 1,303 feet in
18 depth. Orton, Jr., Edward, The Trenton Limestone as a Source of Oil and Gas, Report of
19 the Geological Survey of Ohio, Volume VIII, January 1906, pages 80-81.

20
21 **8. Based upon your experience have adequate efforts been made to identify orphan wells**
22 **in the Project Area?**

23 While it is the State’s responsibility to locate and properly plug and remediate historic
24 wells, the records are often ambiguous. Therefore, the Birch Solar Project has made
25 extensive efforts to survey and identify the location of historic wells within the Project
26 Area and has accurately plotted the locations. That alone is a significant benefit to the State.

27
28 The Birch Solar mitigation plan contained in the ECR avoids risk by bringing a rationale
29 development process to an area impaired by historic irrational development. Modern oil
30 and gas regulatory policy requires that the siting of an oil and gas well maintain setbacks
31 from: 1) occupied dwellings, other wells, roads, and water bodies for health and safety

1 purposes; and 2) from drilling unit boundary lines to protect correlative rights. The Birch
2 Solar Project mitigation plan set forth in the ECR adopts health and safety policy like that
3 which ODNR applies when permitting and siting a new oil and gas well. Additionally, the
4 mitigation plan in the ECR uses the setback policies in reverse when the facility is offset
5 by a depleted and essentially dead historic well. The mitigation plan is to avoid historic
6 wells using a setback policy appropriate to the risk associated with historic wells. The plan
7 is consistent with: 1) the health and safety concerns when siting modern oil and gas
8 facilities; and 2) the profiles the State uses to rank risk of harm from wells registered in the
9 Idle and Orphan Well Plugging Program.

10
11 Nearly all the Trenton orphan wells in the Project Area have no wellhead containment
12 controlling the well. In fact, it is often the case that long ago casing had simply been cutoff
13 below plow depth. Those conditions verify the State's plugging program methodology that
14 assign low-risk ranking to wells within the Project Area. Driving a pile for the Project ten
15 feet into the ground from a distance of at least 50 feet away from an orphaned well will not
16 alter the conditions of a hole that is 1,300 feet deep. In the event a previously unidentified
17 well is discovered, the mitigation proposed will minimize or eliminate any risk.

18
19 Development of the Findlay-Lima Trenton Field is a story of extreme over-drilling and
20 primitive completion and production practices that resulted in fatal reservoir damage.
21 Serious, but failed attempts, to revive production using modern secondary recovery
22 techniques verifies this view. This was the case in 1994 when then Houston-based Meridian
23 Oil staged a Trenton waterflood project near Lima in Allen County to recover residual oil.
24 The project was a failure and soon abandoned. Any rational evaluation of the field will
25 conclude that the Trenton Limestone is fully depleted and of no practical productive value.
26 Even a purposeful well-designed effort to commercially move oil to the surface was futile.

27
28 It is reasonably unlikely that any surface construction proximate to existing wellbores will
29 result in the release of meaningful quantities of oil and gas and therefore presents negligible
30 risk.

31

1 **9. Does this conclude your testimony?**

2 Yes. However, I reserve the right to update my testimony to respond to any further
3 testimony, reports, and/or evidence submitted in this case.

CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 4th day of May, 2022.

/s/ Christine M.T. Pirik

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Attachment TES-1
Thomas E. Stewart
Resume

Thomas E. Stewart

January 2022

Tom Stewart is a past executive vice president of the Ohio Oil & Gas Association (Columbus, Ohio), a state-based trade group, representing the Ohio crude oil and natural gas exploration and production industry. Stewart served as the Association's chief executive officer; editor of the Association's publications; an industry spokesman to media outlets; and as the members' public policy advocate regarding state and federal matters. Stewart served in that position from September 1991 to December 2014, when he retired.

Prior to joining OOGA, Stewart had fifteen years of formal experience in the Ohio industry as an oilfield worker, producer and provider of contract drilling services. He is the third generation of his family to make a livelihood in exploration, development and production of crude oil and natural gas. The family heritage extends back to the original oil regions of western Pennsylvania and southeastern Ohio.

Stewart is the president of Stewart Drilling Co., Inc. a small contracting firm founded in 1977 that today holds oil and gas working interests in Ohio. Also, Stewart is a co-owner and board director for Stewart Brothers, Inc., an Illinois-based family partnership that develops oil and gas prospects and acquires working interests in producing properties located in Illinois, Kansas, Michigan and Texas. In 2015, Stewart founded Oilfield Policy Advisors LLC, a firm offering advisory services related to oil and natural gas public policy.

At OOGA, Stewart managed numerous legislative initiatives on behalf of the Ohio E&P industry, before both the Ohio General Assembly and the United States Congress. Highlights include House Bill 278 (2004), landmark preemption legislation that comprehensively delegated regulatory authority over industry to the state oil and gas agency and which fundamentally expanded access to new reserves; Senate Bill 165 (2010), the first major rewrite of Ohio oil and gas law since 1965; House Bill 133 (2011), that provided E&P access to all state-owned property; and Senate Bill 315 (2012), a legislative reaction to shale development in Ohio that focused on major issues related to the burgeoning national debate over oil and gas development. Stewart's experience includes negotiating agreements between natural gas producers and operators of utility pipeline systems to ensure effective producer access to the natural gas marketplace.

From 1997 to 2015, Stewart served as the Ohio associate representative to the Interstate Oil and Natural Gas Compact Commission (IOGCC). Stewart actively participated with the Independent Petroleum Association of America and contributor to the IPAA's Cooperating Associations. Between 2002 and 2005, Stewart served as the secretary treasurer of the Liaison Committee of Cooperating Oil and Gas Associations, a national network of state and regional trade associations. From 2001 to 2017 Stewart served on the Board of the State Review of Oil and Natural Gas Environmental Regulations, Inc. (www.strongerinc.org), serving three terms as chair of the organization's Board of Directors. STRONGER is a national collaborative effort to advance improvements within state oil and gas regulatory agencies.

Stewart serves on the Oil & Gas Technical Advisory Council (ODNR), as appointed by the Governor of Ohio in 2019. Stewart served two terms between 2015 and 2021 on the Underground Technical Committee, Public Utilities Commission of Ohio, as appointed by the Ohio Senate President.

Stewart was inducted into the Ohio Oil & Gas Association Hall of Fame on March 5, 2014. The Association presented the 2016 Ohio Oilfield Patriot Award to Stewart on August 15, 2016.

Tom Stewart has been married 48 years to Brenda J. Stewart, CNP, an adult nurse practitioner for Fairfield Healthcare Professionals Cardiothoracic Services (retired 2019). Together they raised three wonderful and successful daughters and now are blessed with four grandchildren.

Attachment TES-2 Ohio Oil & Gas Graphics

Ohio Oil & Gas Development

(Pre Utica Horizontal)

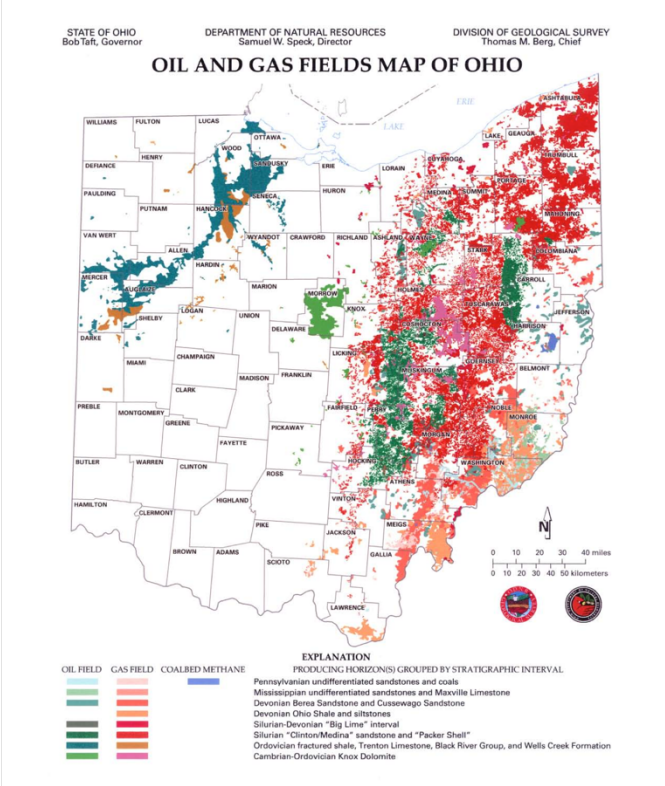


Figure 1: Ohio Field Map
Source: ODNR/Division of Geologic Survey

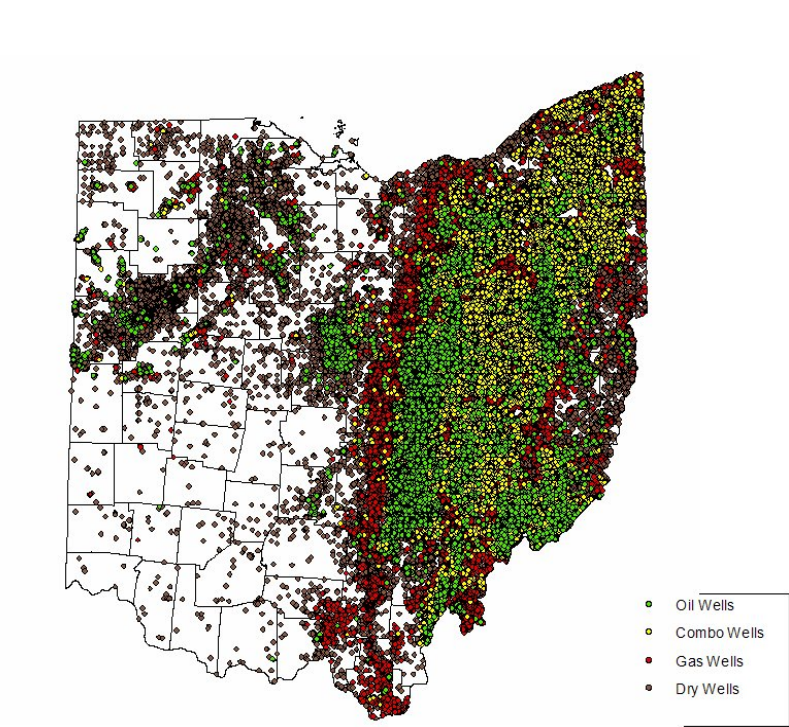


Figure 2: Total Well Location
Source: ODNR/Division of Geologic Survey

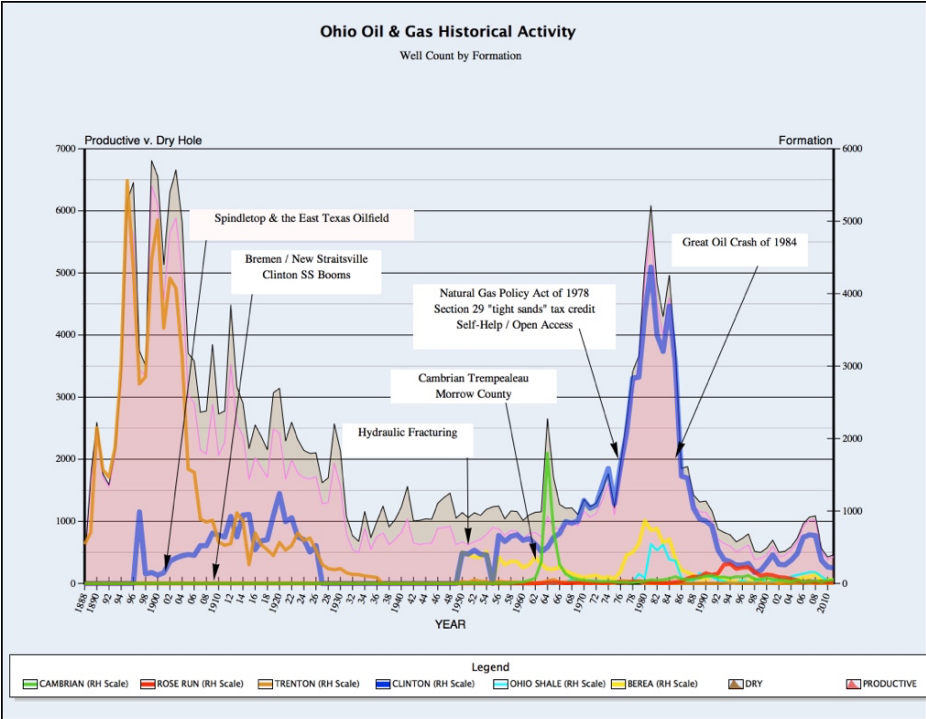


Figure 3: Ohio Oil & Gas Historical Activity
Source: Ohio Oil & Gas Association

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Summary: Testimony - Direct Testimony of Thomas E. Stewart electronically filed
by Christine M.T. Pirik on behalf of Birch Solar 1, LLC