EXHIBIT 1

March 10, 2025

David Abrahamson, Planner
Elmore County Land Use
150 South 4th East Street
Mountain Home, Idaho 83647

Subject: CUP-2024-18 – Crimson Orchard Project

Dear David,

Thank you for the opportunity to comment on Elmore County's review of application CUP-2024-18 for Clēnera's Crimson Orchard Project. The Crimson Orchard Project is seeking a Conditional Use Permit (CUP) from Elmore County to construct a 100-megawatt (MW) utility-scale solar generation and 100-MW battery energy storage project.

Idaho Power's Integrated Resource Plan & Request for Proposal

As Elmore County evaluates this project, it is important to acknowledge Idaho Power's need to secure new generation resources to support significant forecasted growth across all customer classes – from residential to large commercial and industrial. The energy needs for Idaho Power to reliably serve its customers across southern Idaho and eastern Oregon is projected to grow by 2.1% per year over the next 20 years - which is not only attributable to growth in the number of customers, but also a result of increased energy use per customer through electrification.

Every two years, Idaho Power develops an Integrated Resource Plan (IRP) that examines the company's projected need for additional generation resources over the next 20 years. The IRP analysis includes robust modeling to determine which resources will balance reliability and cost, ensuring rates are kept as low as possible for all Idaho Power customers. Idaho Power submits its IRPs to the Idaho and Oregon Public Utility Commissions for regulatory review and acknowledgement.

In its IRP, Idaho Power demonstrated a near-term need for new generation resources to ensure its customers' future energy needs are met. As a result, Idaho Power issued an All-Source Request for Proposals (RFP) seeking least-cost, least-risk generation resources, which sends an active signal to the market that new generation resources are needed. The RFP prompted 192 bids across 47 different resource locations that would add incremental energy and capacity projects to support identified needs in 2026 and 2027. Idaho Power developed this prescriptive RFP process which follows the Oregon Public Utility Commission Competitive Bidding Rules and is adopted by the Idaho Public Utility Commission.

Idaho Power Partnership with Clēnera

The Crimson Orchard Project, along with other proposals, underwent a rigorous review by Idaho Power and a third-party independent evaluator. The Crimson Orchard Project was subject to a robust competitive bidding analysis overseen by the Idaho and Oregon Public Utilities Commissions to determine its inclusion in Idaho Power's RFP short-list of low-cost projects. Crimson Orchard has been selected as a preferred resource project for Idaho Power to serve its customers with affordable, reliable, and available energy.

On February 7, 2025, Idaho Power executed a Power Purchase Agreement with Clēnera to purchase all 100 MW of solar-produced energy and an Energy Storage System Tolling Agreement with control of the 100 MW battery-stored energy and capacity from the Crimson Orchard Project to provide energy directly to Idaho Power customers. The Crimson Orchard Project is required to be operational by April 1, 2027, in order to meet Idaho Power's anticipated system needs beginning in the summer of 2027.

Idaho Power System Interconnection and Availability for Crimson Orchard

The Crimson Orchard Project has undergone review through Idaho Power's Large Generator Interconnection Process. As required by Federal Energy Regulatory Commission (FERC) rules, the project development team has completed the generation interconnection study process and has executed a Large Generator Interconnection Agreement (LGIA) with Idaho Power, validating the ability of the Crimson Orchard Project to connect and deliver energy to Idaho Power customers. The LGIA identifies power system facilities to interconnect a generation project on Idaho Power's transmission system. The LGIA supports the Crimson Orchard Project's development schedule to ensure incremental capacity is added to Idaho Power's system to serve our customers.

On February 11, 2025, Idaho Power submitted a Zoning Permit application to request approval of a small expansion of its Danskin Substation, from 1.6-acres to 1.9-acres. In the LGIA, the Danskin Substation is defined as the Idaho Power-owned and operated Point of Interconnection (POI), or the final connection into the electrical grid, for the Crimson Orchard project. The Danskin Substation also connects locally to other substations in Elmore County and with transmission lines across southern Idaho.

Idaho Power's Request Approval of CUP-2024-18

Idaho Power appreciates the ongoing partnership and collaboration with Elmore County and would be pleased to respond to any follow up questions from the Elmore County Planning and Zoning Commission, Elmore County Commissioners, or the Elmore County Land Use staff. Idaho Power respectfully requests approval of CUP-2024-18, as the project is critical for Idaho Power to secure this affordable and reliable resource to serve customers.

Regards,

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EXHIBIT 2

Comment

Unfounded concerns about photovoltaic module toxicity and waste are slowing decarbonization

Heather Mirletz, Henry Hieslmair, Silvana Ovaitt, Taylor L. Curtis & Teresa M. Barnes

Unsubstantiated claims that fuel growing public concern over the toxicity of photovoltaic modules and their waste are slowing their deployment. Clarifying these issues will help to facilitate the decarbonization that our world depends on.Harnessing the potential of photovoltaic (PV) electricity generation is a key part of the transition to less carbon-intensive energy sources. The most recent energy production forecasts call for a massive 75 TW of global PV capacity by 2050 to have a chance of limiting global tem-perature rise to 1.5 °C and minimizing the impacts of climate change. This is more than a tenfold increase in the current manufacturing and deployment rate in less than 15 years[1]. PV modules are new to many people, so increasing PV deployment has led to growing concerns about the quantity of waste that may arise from decommissioning them (if they are not recycled), and their potential to leach toxic metals. Debunking misinformation about PV modules and PV module waste is the first step in addressing these concerns that are unnecessarily slowing PV deployment[2].A drop in the oceanArticles that raise concerns about PV module waste typically cite a prediction from the 2016 IRENA end-of-life report[3] that 60 million metric tons of cumulative PV module waste will be produced by 2050. Since that report, module lifetimes have increased from 12 years to over 35 years through accelerated testing and improved standards. However, estimates of the required PV capacity have increased dramatically, to 75 TW by 2050. We have updated these projections (shown on the right-hand side of Fig. 1) to take these two factors into account. These new estimates show the best-case and worst-case scenarios for cumu-lative PV module waste are between 54 million and 160 million metric tons cumulatively by 2050[4].Although this seems like a large amount of waste, Fig. 1 shows that 35 years of cumulative PV module waste (2016–2050) is dwarfed by the waste generated by fossil fuel energy and other common waste streams (if we assume constant annual waste at present rates). For example, if we do not decarbonize and transition to renewable energy sources, coal ash and oily sludge waste generated from fossil fuel energy would be 300–800 times and 2–5 times larger, respectively, than PV module waste. Also, both coal ash and oily sludge are known to be toxic5,6. In fact, we globally produce and manage approximately the same mass of coal ash per month as the amount of PV module waste we expect to produce over the next 35 years. Compared another way, globally we will generate up to 440–1,300 times more mass of municipal waste than PV module waste by 2050.Therefore, by transitioning away from fossil fuels, a substantial reduction in waste mass and toxicity is possible and the remaining waste is well within our capabilities to manage responsibly.Correcting misinformation about PV toxicityIncorrect information about toxic materials in PV modules is lead-ing to unsubstantiated claims about the harms that PV modules pose to human health and the environment, fuelling public concern and opposition to PV development2. For example, several US state health department websites provide a list of potential toxins in PV modules, including arsenic, gallium, germanium and hexavalent chromium7–10. However, the vast majority of PV modules are either crystalline silicon or cadmium telluride (CdTe) (97% and 3% global market share, respec-tively, in 2022). Check for updates20502040203020202016Municipal waste70,350Coal ash45,550Plastic waste12,355E-waste1,876Oily sludge249PV module waste, best case 54PV module waste, worst case 160Cumulative wastes (million metric tons)YearMunicipal waste (ref. 17)Coal ash (ref. 6) PV module waste (ref. 4)Plastic waste (ref. 18)E-waste (ref. 19)Oily sludge (ref. 20)Worst caseBest caseFig. 1 | Global cumulative wastes from 2016 to 2050. We compare best-case and worst-case scenario PV module waste estimates4 to municipal waste17, coal ash6, plastic waste18, e-waste19 and cumulative oily sludge from crude oil production20 (assuming constant annual waste generation at present rates) in million metric tons. Best-case scenario represents long-lived, high-quality modules, whereas the worst-case scenario represents regular-quality modules with below average lifetimes21. nature physics Volume 19 | October 2023 | 1376–1378 | 1377Commentin operation after the planned project lifetime can be an extremely efficient form of reuse.Recycling PV modules is critical to decarbonizing the PV supply chain and minimizing waste and is the prominent circular strategy studied and implemented by the solar industry today. Once the amount of PV modules that require recycling is large enough, scaling of reprocessing facilities will greatly reduce cost and diversify the supply chain, increasing the security and sustainability of PV module material sourcing.ConclusionsCommunities, government agencies and policymakers may be operating under outdated or false assumptions about PV module waste and toxicity hazards resulting in delay or unnecessary impedi-ments to the rapid deployment of PV needed to meet decarbonization goals. Placing the expected PV module waste stream in context, the transition to replace fossil-based energy with renewables represents a substantial reduction in mass and toxicity of waste. The PV indus-try is further minimizing the expected waste stream by developing longer-lasting PV modules, markets to re-use PV modules and pro-cessing for recycling-based resource recovery of PV modules. Due to the long lifetimes and consistent profitability of PV systems, there is ample time to scale PV module re-use and recycling industries while rapidly deploying the multi-terawatts of PV that are vital to meet our climate goals by 2050.The solar industry can contribute to decarbonization efforts worldwide through continued research on reliability, low-carbon materials, high-yield PV modules and systems and advancing circular pathways for PV. The solar industry must also effectively communicate the facts and benefits of PV with communities and governments to meaningfully address concerns, and collaborate with allied indus-tries to craft sustainable and responsible PV development practices that consider the entire lifecycle of the system. Objective research and good communication can address community concerns and empower decision-makers to make informed decisions about their energy future.Heather Mirletz 1,2 , Henry Hieslmair 3, Silvana Ovaitt1, Taylor L. Curtis1 & Teresa M. Barnes 1 1National Renewable Energy Laboratory, Golden, CO, USA. 2Advanced Energy Systems Graduate Program, Colorado School of Mines, Golden, CO, USA. 3DNV, Oakland, CA, USA. e-mail: heather.mirletz@nrel.gov; Teresa.barnes@nrel.govPublished online: 5 October 2023References1. Haegel, N. M. et al. Science 380, 39–42 (2023).2. Green, M., Copley, M. & Kellman, R. An activist group is spreading misinformation to stop solar projects in rural America. NPR https://go.nature.com/461yd7A (2023).3. Weckend, S., Wade, A. & Heath, G. A. End of Life Management: Solar Photovoltaic Panels (IRENA, 2016); https://go.nature.com/486TNti4. Mirletz, H. M. et al. Energy in the Balance: PV Reliability to Power the Energy Transition (NREL, 2023); https://go.nature.com/3PvkeAv5. TENORM: oil and gas production wastes. US EPA https://go.nature.com/48hjxDF (2015).6. Brown, M. A. Solid Waste from the Operation and Decommissioning of Power Plants (ORNL, 2017); https://go.nature.com/3LdqlYG7. Managing unwanted or broken solar panels in Florida. FloridaDEP.gov https://go.nature.com/3Prrsqq (2022).8. Solar panel recycling and disposal. Iowa DNR https://go.nature.com/45xT5nj (2021).9.

Photovoltaic (PV) modules (including solar panels) universal waste management. CA.gov https://go.nature.com/487XPBG (2023).10. Shining some light on solar panels. scdhec.gov https://go.nature.com/482togi (2018).In fact, these two most common types of PV contain almost none of these harmful materials. Crystalline silicon PV modules are 77% glass, 10% aluminium, 3% silicon and 9% polymers, with less than 1% copper, silver and tin, and less than 0.1% lead11. CdTe modules are 80–85% glass, 11–14% aluminium, 2–4% polymers, less than 0.4% copper, and less than 0.1% tellurium and cadmium11.We have not found any evidence that either of these PV technol-ogies contain arsenic, gallium, germanium, hexavalent chromium or perfluoroalkyl substances. Arsenic and gallium are used in only high-efficiency PV modules for aerospace applications. Germanium was once used in some amorphous silicon modules that were never produced at scale. We cannot find any evidence that chromium was ever used in PV modules outside of laboratory cells in the 1970s. We believe that hexavalent chromium is listed because it was once used for plating chrome onto solar thermal water heaters (not photovoltaics). Finally, while some backsheets are fluoropolymer-based, free perfluoroalkyl substances are not present in PV modules12.The International Energy Agency confirmed that the only poten-tial human health and environmental concerns in commercially produced PV modules are the trace amounts of lead in the solder of crystalline silicon modules and the cadmium in CdTe modules13. While the <15-µm-thick solder coatings of wires and ribbons in a crystalline silicon module contain small fractions of lead, this risk may be reduced as many manufacturers are seeking to adopt lead-free solders14. The CdTe compound in commercially available thin-film solar modules is extremely stable and does not pose the same toxicological hazard as elemental cadmium. The thin CdTe film (typically they are less than 3 µm thick) means that the total amount of cadmium is less than 0.1% by weight11. CdTe modules are currently collected and both cadmium and tellurium are recycled into new modules.Despite the differences in lifetime and small solder content, PV modules are sometimes incorrectly categorized as e-waste. However, the concentration of solder in PV modules is much lower, and the structure of the module greatly reduces lead-leaching risks. The toxicity of PV module waste is also much lower than both coal ash and oily sludge from crude oil production5,6. Treating decommis-sioned PV modules as a commodity and opportunity for material recovery, and not as hazardous waste would be

environmentally and economically beneficial.Improving PV module sustainabilityThe solar industry is proactively investing in circular strategies, includ-ing reduce, reuse and recycle, to address PV module waste concerns and advance sustainable development practices. Manufacturers have reduced the amount of silicon raw materials and energy embedded in modules by using more efficient diamond wafer sawing, ingot growth processes and wafer geometries. The PV industry is also reducing the total number of modules needed to be manufactured and deployed to meet capacity targets by designing more efficient and longer-lasting products. Indeed, efforts are underway to develop a module with a 50-year lifetime. Our research found that giving priority to designing PV modules and systems with long lifetime, low power degradation and high energy yield leads to lower costs15, less material demand and waste16, and enables streamlined decarbonization benefits because each system produces more power over time and requires fewer replacements.The solar industry is also investing in reuse by analysing secondary market options and studying repair and refurbishing technologies to extend the lifetime of PV systems and modules. Simply leaving systems
nature physicsVolume 19 | October 2023 | 1376–1378 | 1378Comment1
1. Abdelilah, Y. et al. Special Report on Solar PV Global Supply Chains (International Energy Agency, 2022); https://doi.org/kr9h12. Anctil, A. Facts about solar panels: PFAS contamination. Graham Sustainability Institute https://go.nature.com/3sIvSjK (2020).13. Sinha, P., Heath, G., Wade, A. & Komoto, K. Human Health Risk Assessment Methods for PV, Part 3: Module Disposal Risks (International Energy Agency PVPS Task 12, 2020).14. Fischer, M., Woodhouse, M., Herritsch, S. & Trube, J. International Technology Roadmap for Photovoltaics (VDMA, 2021); https://go.nature.com/462WwlV15. Jordan, D., Barnes, T., Haegel, N. & Repins, I. Nature 600, 215–217 (2021).16. Mirletz, H., Ovaitt, S., Sridhar, S. & Barnes, T. M. PLoS ONE 17, e0274351 (2022).17. Solid Waste Management (World Bank, 2022); https://go.nature.com/3PuZ9pL18. Agrawala, S. Global Plastics Outlook: Policy Scenarios to 2060 - Policy Highlights (OECD, 2022); https://go.nature.com/48v2ayZ19. Forti, V., Baldé, C. P., Kuehr, R. & Bel, G. Global e-Waste Monitor 2020: Quantities, Flows and the Circular Economy Potential (UNU/UNITAR, ITU, ISWA, 2020); https://go.nature.com/3RAfnAP20. Dal Mas, F., Zeng, X., Huang, Q. & Li, J. J. Environ. Manag. 287, 112–115 (2021).21. Hieslmair, H. Contextualizing PV waste to 2050 and the role of module reliability and degradation. In PV Reliability Workshop (NREL, 2023).AcknowledgementsThis work was authored in part by

the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the US Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Partial Funding provided by the US Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under Solar Energy Technologies Office (SETO) Agreements 38269 and 38699. The views expressed in the article do not necessarily represent the views of the DOE or the US Government. The US Government retains and the publisher, by accepting the article for publication, acknowledges that the US Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for US Government purposes. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.Competing interestsThe authors declare no competing interests

EXHIBIT 3

Clēnera
AN ENLIGHT COMPANY

IMPACTS
of the
Clēnera
Crimson Orchard
Solar Project

Revised Report
March *2025*

Crimson Orchard Solar Project Economic Contributions in Elmore County, ID

Peterson & Associates[1]

[1] This study was sponsored by Clenera, LLC and conducted by Peterson & Associates on a private consulting platform. The results and opinions in the study are those of the authors alone and do not reflect on any associated institutions. The author may be reached for questions or comments at Dismalscience@live.com.

Table of Contents

Executive Summary

- Idaho has one of the cleanest portfolios of energy production in the nation.
- 97% of energy produced in Idaho is renewable.
- The Crimson Orchard project represents a considerable, $311.2 million, capital investment in Elmore County.
- **Construction Impacts**
    - Including the multiplier effects, the construction of the Crimson Orchard Solar Project will generate approximately 305 non-permanent jobs in Elmore County.
    - The construction will also generate approximately $21.6 million in gross regional product in Elmore County.
- **Operations Impacts**
    - The operations of the project will support up to 6 *direct* full-time on-site jobs (Years 1-20) and up to 2 direct jobs if the battery is not augmented (Years 21-35).
    - Factoring in the multiplier effects, the operations jobs impacts increase to 20 jobs (Years 1-20) and 5 jobs (Years 21-35).
- The average salary package per direct operational job is estimated at $108,029 per year, 80% higher than the average salary package for Elmore County ($60,000).
    - The average salary package for all jobs created by the project's operations is a living wage of $61,093 including the multiplier effects.
    - Total annual state and local taxes from operations are estimated to be $1.20 million.
- **Tax Impacts**
    - One-time contributions to state and local taxes from construction are estimated to be $1.57 million, including the multiplier effects.
    - Annual contributions in local taxes (mostly in Elmore County) are estimated to be approximately $988,652, including the multiplier effects (Yrs 1-20).
- **Additional Impacts**
    - The solar energy tax revenues will also create an additional $1.5 million in economic activity including the multiplier effects. The project will increase local spending by lowering the property tax payments of residents, freeing up funds to be spent elsewhere in the economy.

1) Introduction

In the summer of 2024 Clēnera engaged Peterson & Associates, a regional consulting firm specializing in impact analysis, to perform an economic assessment of the proposed Crimson Orchard Solar project located in Elmore County, ID. Crimson Orchard Solar is a proposed 100MWac utility-scale solar generation facility and a 400MWh Battery Energy Storage System. The total acreage for the project is approximately 1,060.35 acres of privately owned land with approximately 528 acres of fenced infrastructure. The current land use represents seasonal grazing and crop production, traditionally low valued forage crops.

This study is designed to capture the economic value of the project in terms of both the construction phase and the operational phase (from approximately 2025-2060). The analysis looks at both the economic impacts in Elmore County and the state.

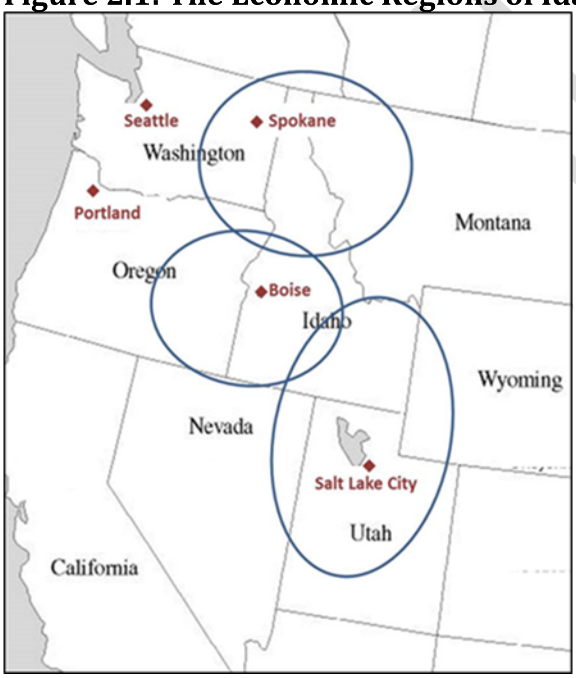
2) Regional Profile

Economic vs. Political Boundaries

Idaho as a state is politically singular, but economically the state can be broken into three distinct economies. The US Bureau of Economic Analysis divided the State of Idaho into 1) The Boise economy, which includes central and southwestern Idaho as well as eastern Oregon; 2) The Spokane economy which includes eastern Washington, northern Idaho, the southwestern region of Canada, and part of western Montana; and 3) The Salt Lake City economy which includes southeastern Idaho, part of northwestern Nevada, and most of Utah. Political boundaries in Idaho rarely coincide with the integrated economic regions focused on these market centers. The Crimson Orchard Solar project is situated in southwestern Idaho and lies within the broader Treasure Valley economic region (i.e., Boise-Mountain Home-Ontario, ID-OR Combined Statistical Area). Idaho trade patterns typically run east west.

Elmore County has considerable economic ties to the surrounding Counties. These include Ada County, Canyon County, Camas County, Gooding County, Boise County, Gem County, Payette County, Owyhee County, and other nearby counties. It also includes counties in Oregon such as Malheur, Baker, and Harney counties.

Figure 2.1: The Economic Regions of Idaho



Idaho: A Contrast of Urban Versus Rural

Idaho is a state that is a mix of both urban and rural regions with very different economies. The rural economy is based primarily on agriculture and natural resource industries. Employment in production agriculture has been a historic Idaho bedrock industry but job growth has been slower than other emerging industries due to productivity increases over time and limited ability to increase output in production agriculture. Agriculture processing, particularly dairy, however, has been an important manufacturing-related job creator in the last twenty years.

The urban economy is based on a fast-growing service industry, tourism, high technology manufacturing, and trade. These industries are fueled by a rapidly growing population, which has been more prevalent in the urban areas of the state. Ada and Canyon counties are in the Southwest region of Idaho, the home of the largest urban population.

While population and economic growth has been strong in urban counties, the experience of rural counties has been more variable. Poverty levels can be higher in rural locations, along with lower median household incomes as compared to those with large population centers.

Idaho's economic performance over the last decade has made it one of the fastest-growing states in the nation and this trend will likely continue into the next decade. From 2010 and 2020, Idaho's population increased by 271,525. During these ten years, Idaho was the 2nd fastest growing state in the U.S., reaching 1,839,106 people and supporting a population growth rate of 17.3%. Only Utah had a faster population growth rate of 18.4%.

Idaho was 2nd place in 2021-2022 in population growth (1.8%) behind only Florida (1.9%). From 2020 to 2021, Idaho was first in the nation (2.9%). Idaho's population has been fast-growing since 1990, ranking in the top five fastest-growing states annually, interrupted only occasionally by recessions. From 2022 to 2023, Idaho's population grew 1.3% ranking 4th in the U.S. and there are indications that the growth rates are slowing.

Regional Overview

Elmore County is part of the Boise-Mountain Home-Ontario, ID-OR Combined Statistical Area) whose population was 902,866 in 2022 comprising 25,136 square miles at 35.9 persons per square mile. The core of the region is Ada County whose population grew 34% from 2010 to 2023 and stood at 524,673 in 2023.

Ada County is the state government hub for Idaho and the state's capital. It is the health care center and nexus with two large medical centers and several smaller hospitals. Micron Technology has a large high technology manufacturing center in the region. Ada County is the retail trade center, a corporate headquarters center, the home of Boise State University, and an arts and entertainment center.

Elmore County is a (mostly) rural county situated in the northeast corner of the periphery of the broader region. Its population stood at 29,724 in 2023 and increased cumulative 9.99% since 2010, lagging Idaho (25%) and Ada County (34%). The two largest cities are Mountain Home, (16,703) and Glens Ferry (1,304).

Figure 2.2: Elmore County Population 2010 to 2023

Source: U.S. Census

Table 2.1 presents the covered employment by industry and jobs as a percentage of total employment. (Note: Covered jobs exclude self-employed workers and military employment). Elmore County's overall covered employment grew 19%, from 6,274 jobs in 2013 to 7,479 jobs, a 1,205-job increase. Total jobs (including military and self-employed) in Elmore are estimated to be about 14,516 (2022). The biggest differences between covered jobs and total jobs are military employment, which is not included in covered jobs, and self-employed workers. Mountain Home Airforce Base is the region's largest employer. Total military employment was 3,552 in 2022 not including civilian air force base employees and about 4,531 jobs including civilian workers. Average earnings (payroll and benefits) across all industries per job including benefits was $59,290 (2022).

The region's largest employers include Mountain Home Airforce Base, Marathon Cheese Company, Mountain Home School District, St. Luke's Regional Medical Center, and Wal-Mart (Table 2.2).

Table 2.1: Covered (QCEW) Employment Profile Elmore County 2013, 2022, 2023 (Excluding Military and Self-Employed Workers)

	2013		2022		2023	
Industry	Jobs	Wages	Jobs	Wages	Jobs	Wages
Total Covered Jobs and Wages	6,274	$30,159	7,338	$42,867	7,479	$45,374
Natural Resources and Mining	443	$28,230	576	$43,140	598	$45,043
Construction	210	$32,217	439	$49,322	495	$55,241
Manufacturing	462	$30,276	766	$41,339	775	$44,869
Trade, Transportation, and Utilities	1,290	$30,260	1,511	$46,485	1,493	$48,724
Information	73	$41,779	60	$57,888	56	$60,839
Financial Activities	219	$32,296	246	$49,224	251	$63,781
Professional and Business Services	293	$42,427	268	$44,320	356	$40,695
Education and Health Services	1,466	$28,405	1,485	$42,924	1,544	$43,719
Leisure and Hospitality	756	$12,407	891	$18,572	864	$20,613
Other Services	134	$26,230	147	$45,589	156	$43,977
Public Administration	928	$42,920	949	$54,479	891	$57,775

Source: Idaho Department of Labor- Quarterly Census of Employment

Table 2.2: Region's Largest Employers, Estimated by Employment

Employer	Ownership	Employment Range
Mountain Home Air Force Base*	Federal Government	4,531
Marathon Cheese Company	Private	500 - 999
St. Luke's Regional Medical Center	Private	250 - 499
Mountain Home School District	Local Government	250 - 499
Wal-Mart	Private	250 - 499
Elmore County	Local Government	100 - 249
City Of Mountain Home	Local Government	100 - 249
Pioneer Federal Credit Union	Private	50 - 099
Pkl Services	Private	100 - 249

Source: Idaho Department of Labor
*Holley and Giuntini (2018). Direct employment includes military and civilian direct jobs.

Commuting Patterns

The Elmore County economy is dependent on the broader regional economy for much of its employment opportunities. That is, most of the jobs are situated outside of the county with nearly 33% of the workers out-commuting to Ada County (Boise) alone. In 2021 only 41.0% of the workers living in Elmore County had jobs within the county. Nearly 59.0% of all jobs were employed outside the county (Table 2.3).

Table 2.3: Commuting Patterns Elmore County, Idaho (Job Counts by Place of Work)

County	Count	Share
Elmore County, ID	3,981	41.0%
Ada County, ID	3,212	33.1%
Canyon County, ID	783	8.1%
Twin Falls County, ID	366	3.8%
Owyhee County, ID	141	1.5%
Jerome County, ID	124	1.3%
Blaine County, ID	104	1.1%
Gooding County, ID	101	1.0%
Bonneville County, ID	80	0.8%
Kootenai County, ID	59	0.6%
All Other Locations	766	7.9%

Source: OnTheMap (census.gov)

Other Economic and Regional Metrics

Per Capita Income

2022 Per capita personal income was $43,302 in Elmore County which was 76.5% of Idaho per capita income ($56,614), and only 66.1% of the U.S. ($65,470).

Educational Attainment

Elmore County lags Idaho and the U.S. in educational attainment (Table 2.4). For example, only 15.40% of the adult population has a bachelor's degree versus 21.6% for Idaho and 21.8% for the U.S.

Table 2.4: Educational Attainment of Elmore County, Idaho, and the U.S.

Measure	Elmore County	Idaho	U.S.
High school or equivalent degree	28.90%	25.90%	25.90%
Some college, no degree	25.90%	24.60%	18.90%
Associate's degree	12.30%	9.50%	8.80%
Bachelor's degree	15.40%	21.60%	21.80%
Graduate or professional degree	5.40%	10.60%	14.30%

Source: U.S. Census Bureau Profiles, American Community Survey (1 & 5 Years)

Housing

The Zillow average housing price of Elmore County was $344,297 (10/24) as compared to Idaho $454,300 and the U.S. $361,282 respectively (United States Housing Market: 2024 Home Prices & Trends | Zillow). Idaho has had one of the fastest growing housing prices in the U.S. from 2018 to 2022. Elmore County's housing prices are below Idaho's average and slightly more affordable than the U.S. average (Table 2.5)

Table 2.5: Housing Range Values

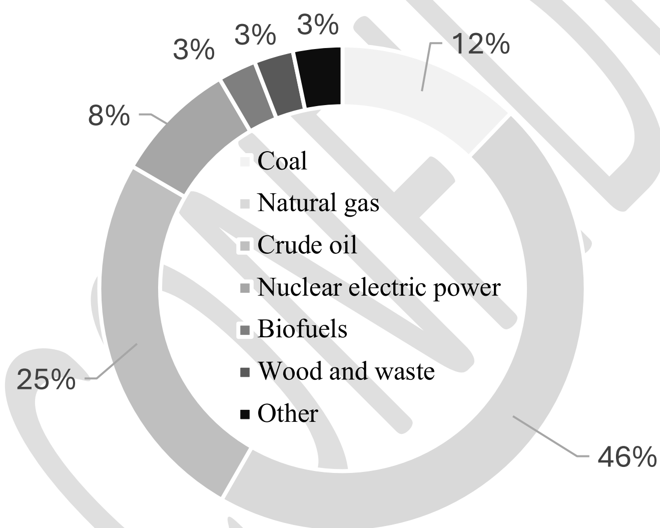
Housing Value Range	Elmore	Idaho	U.S.
Less than $50,000	8.00%	3.90%	5.40%
$50,000 to $99,999	7.20%	2.50%	5.90%
$100,000 to $149,999	11.30%	2.20%	6.50%
$150,000 to $199,999	13.90%	3.20%	8.40%
$200,000 to $299,999	25.00%	12.80%	17.50%
$300,000 to $499,999	24.90%	37.70%	27.10%
$500,000 to $999,999	7.60%	31.80%	22.10%
$1,000,000 or more	2.20%	5.90%	7.10%

Source: U.S. Census Bureau Profiles, American Community Survey (1 & 5 Years)

Energy

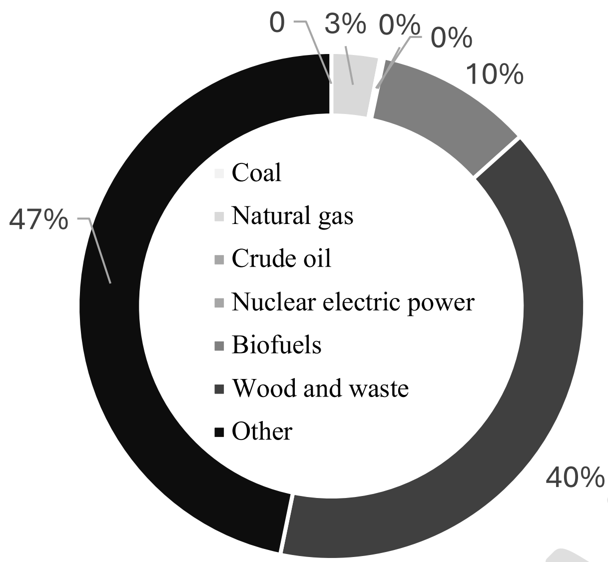
Idaho's energy production mix differs substantially from the US in terms of source of production. Where 83% of the U.S. energy production is based on fossil fuels (coal, natural gas, and crude oil), 97% of Idaho's production comes from renewables (biofuels, wood waste, hydroelectric dams, solar, wind, and geothermal). This data is reported by the Energy Information Administration's State Energy Data System (See Figures 2.3 and 2.4)

Figure 2.3: US Energy Production by percentage of Btus (2022)



Source: U.S. Energy Information Administration, State Energy Data System

Figure 2.4: Idaho Energy Production by Percentage of Btus (2022)



Source: U.S. Energy Information Administration, State Energy Data System

Clēnera will serve to maintain Idaho's legacy as one of the cleanest states in the union Several states: Delaware, Hawaii, Iowa, Main, etc., have 100% renewable production, but that is because they import the majority of their energy, have large biofuel plant, or are low energy consumers. Idaho is a low energy producer but does have some natural gas production in state. Appendix 2 shows the national production distribution by volume for each state and source.

3) Economic Analysis

The economic analysis follows from the proposed expenditure patterns provided by Clēnera. Estimates of total capital investments were made regarding spending in Elmore County and Idaho. These estimates are based in part on prior research of similar sized plants around the United States. The operating expenditures adjust over time, but average annual economic impacts are reported for each operating phase. Impacts in this context represent net changes in economic activity associated with land use, which is currently in forage production and grazing rights. By converting the land to a higher valued use, the net gains are positive, but the loss in grazing and forage production must still be, and are, accounted for. Economic data on forage crops and grazing output were drawn from the University of Idaho enterprise budgets for the region.

Methodology

This section of the report describes the input-output model used for assessing the extent to which the project will affect the Elmore County economy. It incorporates the data and financial descriptions from Clēnera into the IMPLAN model and calculates the impacts the project is likely to have in generating Sales (output), Gross Regional Product (GRP), household income, and employment. It is important to note that insofar as the project increases sales and exports of electricity, the direct effects are reported. However, reductions in agricultural output must also be accounted for. Losses from agriculture enter the model as negative values in the farmer's household income and expenditure profiles.

Basic industries provide income to a region by producing and *exporting* their output out of the regional economy. This is the standard approach for most impact analysis. The function of circulating money in the economy is commonly known as "deepening" the economy, since it prevents money from coming in and immediately exiting the market. As the money from the plant operations and sale of electricity circulates within the economy. It creates jobs and incomes throughout the state's supply chains.

New dollars represent the *gross* impacts of the project to Idaho. The net direct impacts are those gross dollars minus the loss in agricultural output from the alteration in land use. However, these *net direct* dollars gained, generate *indirect* contributions as they flow through the economy's supply chains. Once a commodity like electricity is sold, some portion of that revenue will be spent on maintenance and repair, for example. The firm that sold the material for the repair will then spend money on their inputs. And so, the dollar that was brought into the economy as a result of the project, circulates through many businesses within the state. Indirect effects represent additional economic activity in Idaho's economy driven by the business-to-business transactions stemming from the project's operations.

In addition to the direct and indirect impacts are the *induced* economic contributions, captured in the form of local goods and services purchased by households. As employees spend salaries, wages, and profits in the state economy those household-to-business transactions ripple through the economy. These induced expenditures represent the households' supply-chains and translate into jobs and income for retailers, bank tellers, grocery store clerks, restaurant employees, gas station attendants, and so on. Typically, these expenditures occur locally, generating urban and rural economic development. These additional linkages, beyond the project, help to form a complex intertwining web of industries and institutions within Idaho. So, the relevant question to ask is not only what the project brings directly to the region, but how the regional economy as a whole benefits through this complex networking of industries.

Input-Output models are designed to capture the entirety of this complex networking of industries and institutions. In this case it shows what portion of that economic web is dependent on the project and the expansion of the state's electrical infrastructure. To that end, this section of the report covers the technical aspects of the model, and the nuances made to various components of it to ensure its accuracy. We begin by explaining the basics of any input-output model as well as the data used for this analysis. Next, we discuss how the model needed to be modified to ensure there was no double counting when evaluating the impacts of the sector. Lastly, we outline the direct effects, sometimes referred to as the shock to the economy.

Basics of Input-Output Analysis

The system of accounts known as Input-Output (I-O) tables, represent an economist's version of double-entry bookkeeping for industries. Figure 3.1 below shows a simplified version of an I-O matrix with just a hand full of industries. Each cell, in this table of accounts, is populated by dollar transactions.

Reading down a column of this table shows what inputs an industry is buying in order to produce their output. The Agriculture column, for example, may buy seeds from themselves, fertilizer and farm equipment from the manufacturing sector, and legal and accounting services from the service sector. Payments to employees are captured in the "Labor" row. Payments must be made to owners of capital, and the industry pays taxes to the government. This is where the expenditure data enabled us to isolate operations. Reading across a row tells us where an industry's income originates.

Figure 3.1: Aggregated form Input-Output Matrix

		Producers as Consumers						Final Demand			
		Agric.	Min.	Const.	Manuf.	Services	Other	Households	Investment	Government	Net exports
Producers	Agric.										
	Min.										
	Const.										
	Manuf.										
	Services										
	Other										
Value Added	Labor							Gross Domestic Product			
	Returns to Capital										
	Taxes										

Summing all the labor, capital, and tax payments for all industries gives the sum of all value-added and will equal the Gross Regional Product (GRP) of the region.[2] Similarly summing all of the expenditures of households, government, investment, and net exports yields the GRP of the region. These two methods of calculating GRP are known as the Income and Expenditure approaches, respectively, and they represent a check for ensuring all accounts balance. It is through the I-O system that we are able to trace the dollars through the economy, quite literally following the money. It is through this tracing of dollars that we are able to calculate multiplier effects associated with the project.

Construction Phase

The construction phase in Elmore County, ID is estimated to begin in 2025, while the operations phase is estimated to begin in 2026. Total capital expenditure is estimated at $311.2 million, the majority of which, $202.6 million, will be for equipment. We assume all equipment purchases will be occurring out-of-state. Of the remaining $108.6 million, 31% will be in state occurring largely in Elmore County. Table 3.1 shows the CapEx expenditures by region.

[2] In our case the region is Idaho State.

Table 3.1: Distribution of Capital Expenditures

		Out-of-State %	Elmore %
Total CapEx	**$311,202,218**	**89%**	**11%**
Total Cap Equip	$202,606,288	100%	0%
Total Architectural, Engineering, and Construction	$108,595,930	69%	31%

Source: Clēnera

The expenditures in Idaho and Elmore County ripple through the economy. The indirect and induced impacts derived from the direct spending estimated above are displayed in Table 3.2 below. These impacts are important but temporary and will last only over the period of construction, which is assumed in this analysis to be in approximately one year but might stretch 14 months, or longer, in actual duration.

Table 3.2: 2025 Construction Impacts in Idaho and Elmore County

	Sales	GRP	Income	Jobs
Direct	$33,822,309	$17,024,540	$11,875,500	250
Indirect	$4,328,920	$2,091,305	$1,041,347	27
Induced	$4,672,913	$2,561,719	$1,082,191	28
Total	***$42,824,142***	***$21,677,564***	***$13,999,038***	***305***

Source: Clēnera, IMPLAN, and author's calculations

Operations Phase

The operations of the project result in new expenditures within Elmore but also result in losses in land use in terms of the current grazing leases. This discounting is not always captured but represents a true opportunity cost to the land. Most of the operation expenses are expected to occur in Elmore County, though some of the asset management expenses and major maintenance costs are likely to flow through Boise, which represents Elmore County's central place. Table 3.3 shows the total average operating impacts over the first 20 years of the project. The remaining 15 years of the project have a lower average operating impacts, due to the cessation of the battery storage facility, and are displayed in Table 3.4.

Table 3.3: Net Avg. Operating Impacts (Yrs 2025-2045)

	Sales	GRP	Income	Jobs
Direct	$1,598,701	$795,328	$743,850	7
Indirect	$809,343	$363,640	$348,530	6
Induced	$377,301	$326,051	$250,251	7
Total	***$2,785,345***	***$1,485,019***	***$1,342,631***	***20***

Source: Clēnera, IMPLAN, and author's calculations

Table 3.4: Net Avg. Operating Impacts (Yrs 2046-2060)

	Sales	GRP	Income	Jobs
Direct	$494,943	$246,226	$203,096	2
Indirect	$250,565	$112,579	$95,160	1
Induced	$116,809	$65,649	$68,327	2
Total	***$862,317***	***$424,455***	***$366,583***	***5***

Source: Clēnera, IMPLAN, and author's calculations

Grazing and Forage Crop Losses

The location of the project is largely devoted to dryland grazing and forage crop production. These agricultural activities tend to produce low value commodities and generate lower lease values than those with irrigated infrastructure or acres in the higher rainfall zones. Dryland lease rates for Idaho were gathered from the USDA and multiplied by the acreage in question. This average annual land value is subtracted from the operating expenses of the project, which includes the lease payments from Clēnera to the landowner. Total opportunity costs amounted to roughly $40,000 annually. A somewhat paltry amount compared to nearly $3 million in gross operating costs.

We reduced the operating expenses to account for the opportunity costs of the land. However, it is likely that the lease payments and current use of the land is operating as a non-basic service to local owners of livestock. This is juxtaposed to the basic land use where Clēnera, a non-local enterprise is directly injecting dollars into the county.

Tax Impacts

During *operations*, a solar energy tax is collected in lieu of a property tax, which is included within direct payments. (Note: No direct property taxes are paid, only a solar energy tax which will provide some tax relief to residents). The multiplier effects, however, will create some additional property taxes. The indirect taxes are the supply chain business-to-business taxes that are paid as direct expenditures ripple through the economy and business community. Induced taxes represent the taxes paid by employees and consumers as the direct transactions ripple through the economy.[3] Total tax collections include the direct, indirect, and induced impacts.

[3] For example. The employees operating the solar facility will likely purchase homes (or rent) and will pay property taxes. A portion of these property taxes are included in the multiplier effects.

Tax contributions from construction are presented in Table 3.5, which represents a one-time increase in local and state coffers. Table 3.6 represents the taxes generated from operations.

Table 3.5: Tax Receipts (Construction)

Activity	Local	State	Total
Construction (One Time)	402,300	$1,167,217	$1,569,517

Source: Clēnera, IMPLAN, and author's calculations

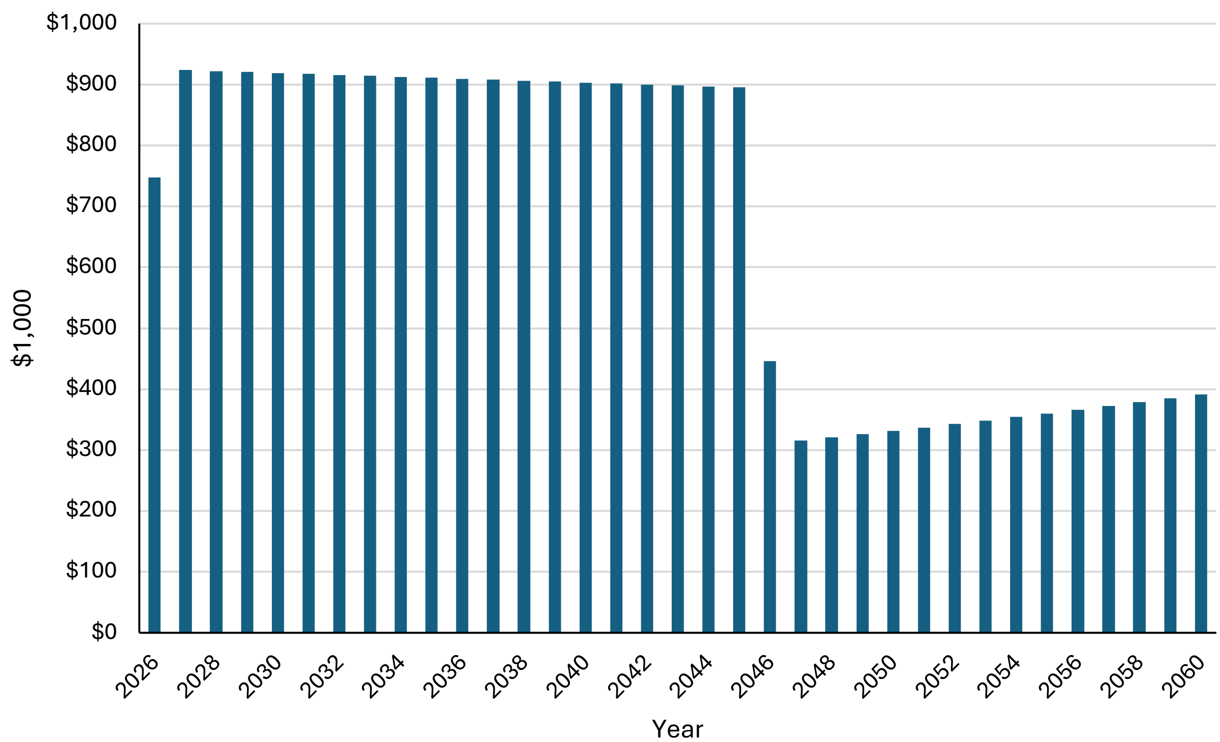
Table 3.6: Average Annual Tax Receipts (Operations)

Activity	Local	State	Total
Operations Annual (Yrs 2025-2045)	$988,652	$211,943	$1,200,595
Operations Annual (Yrs 2046-2060)	$386,258	$69,996	$456,255

Source: Clēnera, IMPLAN, and author's calculations

The project is expected to generate considerable direct *solar energy* tax revenues with an estimated average of about $900,000 per year for the first 20 years (as seen in Figure 3.2).

Figure 3.2: Direct Local Solar Energy Tax Payments



Additional Economic Impacts from the Solar Energy Tax Revenues

Though the municipal budgets will not be greatly affected by the presence of the project, the solar plants will reduce residents' tax burden, freeing up dollars for additional consumer spending. These in turn generate additional economic impacts that support an up to additional $1.5 million in economic activity, including the multiplier effects.

4) Summary and Conclusions

The net impacts of the project are broken into a construction and an operations phase and are measured at the state level, with the understanding that most of the economic activity will be occurring in Elmore County. Construction impacts only occur in the first year of the project, though they may take longer than the assumed 12-month period. While Sales, Gross Regional Product (GRP), Household incomes, and Jobs are all measured, Gross Regional Product and Jobs are the primary measures reported as they avoid double counting and illustrate the true additional activity generated within the state. Table 4.1 and Table 4.2 show the economic impacts.

Table 4.1: One Time Construction Impacts

	Sales	GRP	Income	Jobs
Direct	$33,822,309	$17,024,540	$11,875,500	250
Induced	$4,328,920	$2,091,305	$1,041,347	27
Indirect	$4,672,913	$2,561,719	$1,082,191	28
Total	***$42,824,142***	***$21,677,564***	***$13,999,038***	***305***

Table 4.2 represents the average operating impacts over all 35 years of the project's life. This differs from the impacts reported in Chapter Three where impacts were reported for the first 20 years and remaining 15 years separately. Impacts in the first 20 years will be higher than those reported in Table 4.2 since the table is an average.

Table 4.2: Average Annual Operating Impacts with Taxes (All Years 1-35)

	Sales	GRP	Income	Jobs
Direct	$1,125,662	$559,999	$512,098	5
Induced	$569,866	$256,042	$239,943	4
Indirect	$265,662	$214,450	$172,283	5
Total	$1,961,190	$1,030,492	$924,325	14

Moving resources to their highest valued use, in this case land, is the best way to combat inflation, and simultaneously improve household welfare. While the construction phase has the largest one-time economic impact on jobs and GRP, its effects are temporary. The operations impacts are annual and pay living wage jobs, averaging about $68,078 per year across all jobs. The direct solar operators' salary packages alone are $108,029 across all of the years in the project in real terms.

The solar energy tax revenues will also create an additional $1.5 million in economic activity including the multiplier effects.

Caveats and Limitations of Study

This study was prepared for Clēnera Steven Peterson and Timothy Nadreau. The results and opinions in the study are those of the authors alone and do not reflect on any associated institutions. The authors may be reached for questions or comments at Dismalscience@live.com. The authors bear no liability in application or use of the study in any financial or policy decision making. This report contains estimates and was completed using the information available at the time of completion. It is intended to provide likely future outcomes not to provide actual measures of those outcomes since some of the information is unknown currently.

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Appendix 2: Energy Production Data by Volume, State, and Source:

Table P2. Primary energy production estimates in trillion Btu, 2022

State	Fossil fuels			Nuclear electric power	Renewable energy			Total [e]
	Coal [a]	Natural gas [b]	Crude oil [c]		Biofuels [d, e]	Wood and waste [f]	Other [g]	
	Trillion Btu							
Alabama	262.1	101.8	21.7	441.3	1.6	172.9	38.1	1,039.5
Alaska	15.5	414.2	907.2	0.0	0.0	7.7	6.6	1,351.1
Arizona	0.0	0.2	(s)	333.1	0.0	9.4	64.9	407.6
Arkansas	0.0	425.6	25.3	149.4	6.2	67.8	16.0	690.2
California	0.0	155.3	708.9	183.5	36.8	123.1	383.3	1,591.0
Colorado	268.1	2,251.0	910.3	0.0	20.6	16.7	76.2	3,542.8
Connecticut	0.0	0.0	0.0	171.7	2.9	18.2	7.1	199.9
Delaware	0.0	0.0	0.0	0.0	0.0	1.6	1.2	2.8
District of Columbia	0.0	0.0	0.0	0.0	0.0	1.0	0.7	1.7
Florida	0.0	1.1	6.9	320.9	0.0	148.8	85.6	563.3
Georgia	0.0	0.0	0.0	355.4	0.4	236.8	36.5	629.1
Hawaii	0.0	0.0	0.0	0.0	0.7	4.6	11.7	16.9
Idaho	0.0	2.7	0.2	0.0	8.8	35.1	41.1	87.9
Illinois	802.4	2.1	39.4	1,031.1	223.7	16.6	93.4	2,208.7
Indiana	532.4	4.0	9.6	0.0	175.0	31.7	44.8	797.5
Iowa	0.0	0.0	0.0	0.0	588.3	19.4	163.3	771.0
Kansas	0.0	173.1	160.1	93.7	91.7	6.7	102.9	628.2
Kentucky	686.9	97.2	12.8	0.0	11.0	38.8	18.7	865.4
Louisiana	4.6	4,182.5	207.4	168.6	102.4	114.5	6.7	4,786.8
Maine	0.0	0.0	0.0	0.0	(s)	73.4	22.6	96.0
Maryland	34.5	(s)	0.0	154.5	0.0	12.2	15.3	216.4
Massachusetts	0.0	0.0	0.0	0.0	0.1	29.0	23.2	52.2
Michigan	0.0	74.7	26.0	271.3	46.7	98.0	45.4	562.1
Minnesota	0.0	0.0	0.0	153.3	187.5	56.9	63.3	461.0
Mississippi	35.1	29.3	72.0	89.7	3.9	55.2	2.8	287.9
Missouri	1.5	0.0	0.4	92.6	67.4	22.4	33.1	217.3
Montana	505.2	42.6	117.0	0.0	1.4	16.1	48.1	730.5
Nebraska	0.0	0.3	8.5	58.6	274.9	4.2	48.3	394.7
Nevada	0.0	(s)	1.2	0.0	0.0	3.1	58.3	62.7
New Hampshire	0.0	0.0	0.0	113.9	0.6	27.0	6.7	148.2
New Jersey	0.0	0.0	0.0	295.3	0.0	14.9	18.4	328.6
New Mexico	195.2	3,120.8	3,295.8	0.0	6.7	12.6	59.2	6,690.2
New York	0.0	10.0	1.5	279.6	7.7	83.4	129.6	511.9
North Carolina	0.0	0.0	0.0	444.7	0.2	121.5	59.6	625.9
North Dakota	354.7	1,401.3	2,195.2	0.0	98.6	2.0	62.5	4,114.4
Ohio	59.5	2,462.7	126.6	175.5	89.0	44.8	20.5	2,978.6
Oklahoma	(s)	3,236.9	861.3	0.0	12.9	34.6	134.8	4,280.6
Oregon	0.0	(s)	0.0	0.0	4.7	70.5	144.7	219.9
Pennsylvania	1,042.6	7,932.9	25.6	794.3	20.6	106.7	27.7	9,950.5
Rhode Island	0.0	0.0	0.0	0.0	0.1	3.7	3.9	7.6
South Carolina	0.0	0.0	0.0	567.0	0.0	110.0	18.2	695.2
South Dakota	0.0	0.2	5.5	0.0	178.8	3.9	51.5	239.9
Tennessee	(s)	3.1	0.8	371.6	26.1	40.0	34.2	475.9
Texas	221.6	13,334.7	10,497.2	433.9	74.1	97.2	483.6	25,142.4
Utah	246.1	288.3	257.2	0.0	0.0	4.2	22.7	818.5
Vermont	0.0	0.0	0.0	0.0	0.0	21.3	6.8	28.2
Virginia	279.5	93.5	(s)	294.1	0.1	117.7	23.4	808.3
Washington	0.0	0.0	0.0	102.7	18.6	100.8	299.7	521.8
West Virginia	2,160.9	3,492.1	86.4	0.0	0.0	10.8	12.7	5,762.9
Wisconsin	0.0	0.0	0.0	105.1	75.9	88.0	17.4	286.4
Wyoming	4,265.1	1,171.0	516.7	0.0	18.2	5.3	37.3	6,013.7
Federal Offshore - Gulf of Mexico	—	892.9	3,590.3	—	—	—	—	4,483.2
Federal Offshore - Pacific	—	(h)	15.2	—	—	—	—	15.2
United States	11,973.5	45,398.4	24,710.5	8,046.4	2,510.8	2,562.4	3,234.1	98,436.1

[a] Includes refuse recovery.
[b] Marketed production, which includes natural gas plant liquids (NGPLs).
[c] Includes lease condensate.
[d] Biodiesel, fuel ethanol, and renewable diesel. For the production of biodiesel and fuel ethanol, equal to the Btu input of biomass feedstock (such as corn for ethanol and soy for biodiesel).
[e] U.S. total includes other biofuels not allocated to the states.
[f] Wood energy production and biomass waste energy consumption.
[g] Consumption of noncombustible renewable energy, including geothermal, hydroelectric power, solar, and wind energy.
[h] Production of federal offshore natural gas along the Pacific coast is included in California.
— = Not applicable. (s) = Less than 0.05 trillion Btu.

Note: Totals may not equal sum of components due to independent rounding.
Data Source: U.S. Energy Information Administration, State Energy Data System. See Technical Notes.
http://www.eia.gov/state/seds/