



## DISCUSSION GUIDE

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# USING THIS GUIDE



Where does your energy come from? **Independent Lens** is teaming up with Jonathan Scott from HGTV's **Property Brothers** to help communities across the country answer that question. In his debut documentary, **Jonathan Scott's Power Trip**, the home makeover star turned solar energy advocate guides viewers through the complex web of energy production in the United States to reveal the dubious ways utility monopolies deny consumers choice in how they power their lives. The documentary premieres on PBS's **Independent Lens** on November 16, 2020.

Prior to the broadcast premiere, Indie Lens Pop-Up partners across the country will be organizing virtual screenings designed to empower energy consumers with knowledge on this important topic. To help organizers and viewers generate community dialogue about clean energy, this guide provides viewers and event organizers with background information on the documentary, discussion questions, and a list of organizations dedicated to educating and advocating for energy consumers.

Thank you for joining with us to promote these goals of **Jonathan Scott's Power Trip**:

- Educate viewers about the U.S. energy economy and explore resistance to renewable energies by utility monopolies.
- Discuss the potential of solar power to reduce costs for energy consumers and create quality jobs in your community.
- Address issues of equity and environmental justice, especially the burden of fossil fuel pollution on people of color and low-income communities.
- Celebrate the communities that are leading the clean energy revolution and connect viewers to resources about how to participate.

# ABOUT INDIE LENS POP-UP



Indie Lens Pop-Up is a neighborhood series that brings people together for film screenings and community-driven conversations. Featuring documentaries seen on PBS's *Independent Lens*, Indie Lens Pop-Up draws local residents, leaders, and organizations together to discuss what matters most, from newsworthy topics and social issues to family and community relationships.

During the COVID-19 pandemic, Indie Lens Pop-Up is going virtual. Neighbors can now join from the safety of their homes to watch films together on OVEE, the Indie Lens Pop-Up virtual theater. Make friends, share stories, and join the conversation at an Indie Lens Pop-Up screening online: [bit.ly/ILPOP-Screenings](https://bit.ly/ILPOP-Screenings).



# ABOUT THE FILM



## How to Watch the Film

Virtual Indie Lens Pop-Up Screenings:

**October 18–December 16, 2020**

Independent Lens Broadcast Premiere:

**November 16, 2020**

Stream online at [video.pbs.org](https://video.pbs.org):

**November 17–December 16, 2020**

The key to environmentally friendly, cost-effective renewable energy is shining down upon us. In sun-soaked Las Vegas, *Property Brothers*' Jonathan Scott harnesses that power by installing solar panels on his own home. But when his local public utility commission takes every possible opportunity to suppress that type of competition, Jonathan sets out to answer "Why don't more Americans have the choice to go solar?" On his journey to learn about clean energy, Jonathan talks with members of the Navajo Nation, who built a utility-scale solar plant; farmers struggling to make ends meet in Georgia; coal workers ready for new, clean jobs in Kentucky; religious leaders fighting to meet their community's energy needs in North Carolina; and politicians at the forefront of the battle for renewable energy throughout the country.

# FROM THE FILMMAKER



**For more than 10 years now**, my brother and I have been building a brand based on trust. Eighteen million households in more than 160 countries invite me into their living rooms every month because they know that my goal is to inspire and entertain, but also—and most important—to never compromise on my integrity. I'm always the first to speak up when I think things aren't right and people are being treated unfairly. In fact, there are few things that get me fired up faster than someone being taken advantage of, particularly when it's at the hands of the powerful and affluent.

Growing up on our family ranch in Calgary, Alberta, I was taught to respect the planet and be a good steward of the land. So, in that spirit, in 2015, I made the decision to power my home in sunny Las Vegas with solar. But instead of being a joyful occasion, the switch sparked a three-year journey of confusion, frustration, and even real anger that led me to the far corners of the United States and to all levels of governments and that buried me up to my neck in legislative and corporate B.S. What I found was shocking, and I was motivated to make a film that sought to uncover why this was happening and how we can make real change to the system.

Energy affects all of us in more ways than you can imagine, and there's a silent war being waged against everyday people trying to have a say in how they choose their power. This film isn't about party or politics—this story is about real people just trying to

survive. I made this film to bring the conversation to the forefront, boil some blood, and (if I've done my job right) move people to take action. This is a human story, and, as a filmmaker, my primary objective is the pursuit of truth. Energy consumers have the right to know when they are being played like puppets, and they must be empowered to do something about it.

I've partnered with Neil Berkeley's Future You Media (*Gilbert, Harmontown, Beauty Is Embarrassing*) and Adam McKay (*Vice, The Big Short*) to tell an unexpected story that looks beyond the obvious talking heads and finds its voice in real people with real struggles.

Although the backdrop of this film is America, this is a global issue. We are at a tipping point. With a substantial spike in recent press about energy, not to mention the political sparring, no time is better than now for the truth to get out.

I truly feel my upbringing and values led me to make this film, as they gave me the perspective and pause to realize something wasn't right—and the passion to ensure something is done about it.

Thank you for participating in what I've worked so hard to create.

— **Jonathan Scott**, Writer and Director, *Jonathan Scott's Power Trip*



# BACKGROUND INFORMATION



Energy in the United States is a confusing business, and corporate propaganda is not helping consumers understand the issues. The information included in this section aims to answer some fundamental questions and give you a foundation on which to build your discussion about the film. Indie Lens Pop-Up organizers can also use any of the topics outlined in this section as themes for their virtual events.

## Solar Technology Basics

### *How does solar energy work?*

The type of solar technology seen in the film is called photovoltaic, or PV. Photovoltaic panels contain a layer of glass that absorbs sunlight atop a layer of semiconductor material—often silicon—that knocks electrons free from the sunlight to create a current of energy. That energy is fed through an inverter into the electrical grid to be used by all energy consumers.

Solar panels can be found in small installations distributed across rooftops, such as the one seen on Jonathan's home, and they can be located in a centralized spot in large, utility company-scale solar farms, such as the one Jonathan visits on the Navajo Nation. There is also another type of solar that you may find at utility companies in your state called concentrated solar power, or CSP, which uses reflective surfaces to capture the sun's heat to create steam that turns turbines used in producing electricity.<sup>1</sup>

### *What happens to solar energy when it isn't sunny?*

CSP continues to generate energy from the sun's heat even when the sun goes down. PV panels will still work on a cloudy day, but not at night. For this reason, solar energy storage is a crucial step in making solar power a realistic replacement for fossil fuel energy. With a battery-equipped solar system, rather than sending power straight to the grid, a homeowner can store the energy in the battery for use when the sun goes down or if the grid experiences a power outage.

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Residential-scale batteries for solar power are more available to homeowners than ever before, although costs are still relatively high. Utility companies are starting to invest in large-scale batteries as well. For example, Florida Power and Light has announced plans to build a 409-megawatt battery system for one of its solar plants, which, if completed, would be the largest to date.<sup>2</sup>

The states with the highest solar energy generation potential are located in the Southwest. See this U.S. Department of Energy solar index map to check your state's potential: [www.energy.gov/maps/solar-energy-potential](http://www.energy.gov/maps/solar-energy-potential).

## *Does solar energy have any negative environmental impacts?*

Solar panels have far less of an impact on the environment than do extracting and burning fossil fuels. However, there are still environmental impacts to consider. The film lists several drawbacks, including the use of a number of hazardous materials and the large amount of waste created in manufacturing, some of which is toxic.

Solar energy also requires a lot of panels to make a small amount of electricity, and they have an optimum lifespan of 25 to 30 years.<sup>2</sup> Some parts of the panels are recyclable, but some are not—which means in another 15 to 20 years, communities will have to manage the safe disposal of all the panels installed over the past decade.

### Sources:

- <sup>1</sup> [climateresourcesproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions](http://climateresourcesproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions)
- <sup>2</sup> [climateresourcesproject.org/blog/how-does-solar-power-work-anyway](http://climateresourcesproject.org/blog/how-does-solar-power-work-anyway)

## Net-Metering

### *What is net-metering?*

Net-metering measures the difference between the energy consumed and produced by a utility customer. As you use energy, the meter supplied by your utility company will go up along with your bill. But net-metering allows property owners that produce energy, such as with solar panels, to earn credit back on their utility bill for the energy they supplied to the grid. Net-metering makes solar panels an affordable option because the cost of installing the panels can be recuperated over time by lower monthly utility bills.<sup>1</sup>

### *Which states have net-metering?*

As of 2020, 34 states, four territories, and Washington, D.C., had passed net-metering laws that require utility companies to reimburse homeowners for the energy they produce. Two other states—Texas and Idaho—are home to utility companies

that voluntarily added net-metering. Arizona, Georgia, Hawai'i, Louisiana, Mississippi, and Utah have what utility companies call "distributed generation compensation rules," which offers customers compensation, but not through net-metering.<sup>2</sup>

As residential solar installations grow, so does the concern from utility companies about their profit margins and long-term viability—a phenomenon ominously dubbed the "utility death spiral" by the industry. Utility companies have launched a coordinated resistance to net-metering in places like Florida, Nevada, and Arizona as shown in the film. In addition, utility company-backed campaigns have sought to lower the reimbursement rates for solar households, hike the costs charged to solar customers, and even get rid of net-metering all together.

### Sources:

- <sup>1</sup> [solarunitedneighbors.org/learn-the-issues/net-metering](http://solarunitedneighbors.org/learn-the-issues/net-metering)
- <sup>2</sup> [solarpowerworldonline.com/2020/03/which-states-offer-net-metering](http://solarpowerworldonline.com/2020/03/which-states-offer-net-metering)

## Fossil Fuel and Fracking

### *What are fossil fuels?*

Coal, crude oil, and natural gas, which includes natural gas from wells as well as from shale, are all forms of fossil fuel energy. They are carbon-rich materials created over millennia from plant and animal decay. Fossil fuel companies extract them from deep underground and pipe them across the country for processing. Petroleum, refined from crude oil, and natural gas produced most of the energy that Americans consumed in 2019, at 37 percent and 32 percent, respectively. Coal, meanwhile, fell to 11 percent of the U.S. energy consumption.<sup>1</sup>

### *Why are fossil fuels considered to be dirty energy?*

Power derived from burning fossil fuel is referred to by environmentalists as "dirty energy," which pollutes the environment with greenhouse gases and threatens public health more than do renewable "clean energy" sources.

Natural gas is touted by fossil fuel companies as a clean energy source, although most environmentalists disagree. It is true that burning natural gas for energy emits less carbon dioxide into the atmosphere than do other fossil fuels, such as coal and petroleum. However, solar and other renewables are cleaner than all fossil fuels because they emit no carbon as they generate energy.

Some consider natural gas to be a bridge that utility companies and communities can use to reduce pollution while they build the infrastructure necessary to derive 100 percent of their energy from renewable sources. Others worry that cheap natural gas is slowing down the necessary transition to renewable energy.



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## *What is fracking?*

The oil and gas industry has grown rapidly since 2008 when a new fossil fuel extraction method was developed known as hydraulic fracturing, or fracking. Fracking involves blasting water through rock to release gas trapped deep in the earth's layers.

Fracked natural gas has flooded the market over the past decade, driving prices down and making it a cheap competitor for all other forms of energy production. Texas, Pennsylvania, Louisiana, Oklahoma, and Ohio are the largest natural gas producing states.<sup>2</sup> See FracTracker Alliance for a list of oil and gas sites in your state: [fractracker.org/map/us](http://fractracker.org/map/us).

As mentioned in the film, Oklahoma and other states in the central United States have seen a concerning surge of earthquakes since 2009, just as fracking took off in the state. The U.S. Geological Society attributes the increase in quakes to wastewater disposal methods used by the oil and gas extraction industry, but says that just a few have resulted directly from fracking. Many of the quakes are small and have not resulted in significant injuries, loss of life, or widespread property damage.<sup>3</sup>

### Sources:

- <sup>1</sup> [eia.gov/energyexplained/renewable-sources](http://eia.gov/energyexplained/renewable-sources)
- <sup>2</sup> [eia.gov/tools/faqs/faq.php?id=46&t=8](http://eia.gov/tools/faqs/faq.php?id=46&t=8)
- <sup>3</sup> [usgs.gov/faqs/oklahoma-has-had-a-surge-earthquakes-2009-are-they-due-fracking?qt-news\\_sc=&qt-news\\_science\\_products=0%23qt-news\\_science\\_products](http://usgs.gov/faqs/oklahoma-has-had-a-surge-earthquakes-2009-are-they-due-fracking?qt-news_sc=&qt-news_science_products=0%23qt-news_science_products)

## Renewable Energy

### *What is renewable energy?*

Solar power is one form of renewable energy, which refers to energy sources that can be naturally replenished within a human lifespan. Other forms include wind power generated from windmills, hydroelectric from waterways, geothermal from deep in the earth, and biogas captured from rotting waste.

In 2019, about 11 percent of the energy consumed in the United States came from renewable sources—within that, solar accounted for 9 percent.<sup>1</sup> In comparison, Germany produces more than 40 percent of its energy from wind and solar alone.<sup>2</sup>

The terms *renewable energy* and *clean energy* are often used interchangeably, but renewable energy sources are not necessarily clean energy sources. For example, although nuclear energy technically is renewable, most environmentalists do not include it as a clean energy because of the highly toxic nuclear waste it produces. Nuclear energy has fallen in recent years to 8 percent of the total U.S. energy consumption.<sup>3</sup>

### *Which states are adopting renewable energy?*

The majority of U.S. states have passed some sort of Renewable Energy Standard (RES), which requires that a minimum percentage of utility companies' total energy be from renewable sources. Iowa was the first state to adopt such a law, in 1983, and since then,

30 more states, three territories, and Washington, D.C., have also passed RESs—nearly half of the growth in renewable energy can be attributed to RESs.<sup>4</sup> See your state's standards in this map created by the National Conference on State Legislatures: [ncsl.org/research/energy/renewable-portfolio-standards.aspx](http://ncsl.org/research/energy/renewable-portfolio-standards.aspx).

In addition, several states have set goals for transitioning to renewable energy, and 14 states, Washington, D.C., and a number of cities and institutions have made some type of commitment to reach 100 percent clean energy.<sup>4</sup> California and Washington state, for example, are working toward 100 percent carbon-free or zero-emission electricity by 2045. Check the Clean Energy States Alliance to see if your state has made a clean energy commitment: [cesa.org/projects/100-clean-energy-collaborative/table-of-100-clean-energy-states](http://cesa.org/projects/100-clean-energy-collaborative/table-of-100-clean-energy-states).

### Sources:

- <sup>1</sup> [eia.gov/energyexplained/renewable-sources](http://eia.gov/energyexplained/renewable-sources)
- <sup>2</sup> [weforum.org/agenda/2020/08/where-solar-wind-power-are-thriving](http://weforum.org/agenda/2020/08/where-solar-wind-power-are-thriving)
- <sup>3</sup> [ncsl.org/research/energy/renewable-portfolio-standards.aspx](http://ncsl.org/research/energy/renewable-portfolio-standards.aspx)
- <sup>4</sup> [cesa.org/projects/100-clean-energy-collaborative/table-of-100-clean-energy-states](http://cesa.org/projects/100-clean-energy-collaborative/table-of-100-clean-energy-states)

## Utility Companies in the United States

### *What are the different types of energy utility companies?*

U.S. utility companies come in three different varieties. The type most discussed in the film is the investor-owned, publicly traded utility company with a primary goal of making profit for its shareholders. NextEra Energy, owner of Florida Power & Light, Duke Energy headquartered in North Carolina, Dominion in Virginia, Arizona Public Service, WEC Energy Group, owner of WE Energies, in Wisconsin, and PG&E in California are all examples. In 2017, 168 investor-owned utility companies served 72 percent of all electric customers.<sup>1</sup>

A second type of utility company is that owned by a municipality or tribal government. For example, the territory of Puerto Rico, the city of Los Angeles, and the Navajo Nation, profiled in the film, all own their own utility companies.

The third type of utility company is the nonprofit, member-owned rural electric cooperative established during the Great Depression to provide electricity to rural communities that other utility companies did not service. Rural-owned cooperatives exist everywhere but are predominantly located in the Midwest and Southeast.

Utility companies typically own and maintain the plants where electricity is produced as well as the grid system of wires and transmitters that deliver electricity to your homes. Some industry giants, such as Berkshire Hathaway and Koch Industries mentioned in the film, also own the fossil fuel extraction companies used to power utility companies. When utility conglomerates invest deeply in fossil fuel extraction, they are also more likely to resist a renewable energy transition that threatens their investment portfolio.

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## *Why are utility monopolies allowed?*

In general, U.S. economic policy is set up to prevent monopolies. They are considered both bad for business because monopolies stifle competition in the marketplace and bad for consumers because monopolies can raise prices on their products or services with little fear of losing customers. Utility monopolies, however, are the exception. They are not just allowed, they are mandated by federal policy created in the early 20th century.

At that time, a city might have had several nearby utility companies selling and distributing electricity to residents over short distances. As America sprawled, utility companies lobbied lawmakers to allow monopolies, arguing that all customers could receive electricity cheaper and more efficiently if there was only one centralized grid system delivering power.<sup>2</sup> Utility companies also used this argument in 2018 in opposition to the Nevada referendum that proposed to break up monopolies.

## *What about oversight for the utility monopolies?*

To protect consumer interests, states established public utility commissions, or PUCs, with governor-appointed commissioners to keep utility monopolies in check. However, solar energy advocates fear that PUCs have been co-opted by special interests to rubber-stamp policies that serve the utility companies instead of the people, as was argued by Nevada residents in the net-metering debate.

It is notable that utility companies regularly donate to the campaigns of candidates in governor races. The Energy & Policy Institute found that from 2008 through 2018, 70 utility holding companies and subsidiaries contributed to a handful of Democrat and Republican groups working on state elections for a total of \$43.4 million—almost half of that went to the Republican Governors Association alone.<sup>3</sup>

## *What utility reforms are being proposed?*

Solar energy advocates argue that the grid system owned and operated by utility monopolies is antiquated and does not allow consumers to choose how they get their energy. Renewable energy sources, such as solar or wind, allow for communities to create smaller, smarter grids where energy is produced locally and stored and distributed over short distances according to demand.

A few states, including New York, Maryland, California, and Rhode Island, have started discussing grid reforms.<sup>4</sup> Meanwhile, Texas, Pennsylvania, Massachusetts, and Maryland have experimented with marketplace programs to provide more choice to utility customers. A handful of others, including Nevada, Florida, Nebraska, Kansas, Colorado, and Virginia, have considered referenda or bills to break up monopolies.<sup>5</sup>

### Sources:

<sup>1</sup> [eia.gov/todayinenergy/detail.php?id=40913](https://www.eia.gov/todayinenergy/detail.php?id=40913)

<sup>2</sup> [energyandpolicy.org/how-market-power-gives-electric-utilities-political-power](https://energyandpolicy.org/how-market-power-gives-electric-utilities-political-power)

<sup>3</sup> [energyandpolicy.org/utility-industry-contributions-political-organizations](https://energyandpolicy.org/utility-industry-contributions-political-organizations)

<sup>4</sup> [solarunitedneighbors.org/learn-the-issues/grid-reform](https://solarunitedneighbors.org/learn-the-issues/grid-reform)

<sup>5</sup> [utilitydive.com/news/bipartisan-bill-aims-to-end-dominions-distribution-monopoly-in-virginia/569977](https://utilitydive.com/news/bipartisan-bill-aims-to-end-dominions-distribution-monopoly-in-virginia/569977)

## U.S. Energy Jobs

### *How many coal jobs are left?*

At its peak in the 1920s, the U.S. coal industry employed just under a million people in mining, transport, and power plants. By 2019, that number had fallen to about 174,000 jobs total—50,000 of them mining jobs, the majority of which are located in Wyoming, West Virginia, and Illinois.<sup>1</sup>

Automation and changes in mining practices have chipped away at the number of coal jobs left. The booming natural gas industry and a steady growth in renewables have also contributed to coal's decline. Both are cheaper energy sources and pollute less. In fact, the United States hasn't built a coal-fired plant in almost a decade, and 500 have closed.<sup>2</sup> Coal exports, however, are up, as countries like India continue to build coal-fired plants to meet their growing energy needs.

Continued exposure to coal dust can damage the coal miners' lungs and impair their ability to breathe. Black lung disease, also called coal workers' pneumoconiosis, is an occupational disease common among coal miners.

### *What about solar energy jobs?*

The solar industry employed nearly 250,000 Americans in 2019 fueled by a 49 percent average annual growth in the industry over the last decade.<sup>3</sup> In comparison, the large oil and gas extraction industry employed about 155,000 people in 2020, which is roughly the same as a decade earlier.<sup>4</sup>

Solar installation jobs, such as Osh's job with Sunrun in the film, are considered good for communities because they can be local in nature, compared with fossil fuel extraction jobs that are concentrated in a few locations. They are also good for workers and their families because they are generally safer than mining jobs and offer higher salaries, with a minimum starting wage at around \$17 per hour.

California is the top solar producing state in the country. In 2018, the state generated 25 GW of solar power for a 17 percent share of the state's energy and employed more than 86,000 people. North Carolina was a distant second, producing 4.5 GW of power and 7,500 jobs, and close behind were Arizona, Nevada, Texas, New Jersey, Massachusetts, Florida, Utah, and Georgia.<sup>5</sup> See how your state stacks up in solar job growth in this map from the Solar Foundation: [solarstates.org/#states/solar-jobs/2019](https://solarstates.org/#states/solar-jobs/2019).

Initial studies show that the solar workforce on the whole is slightly more diverse than the overall American workforce, but still has a way to go in providing equal opportunity to workers of color and women workers, especially in decision-making leadership



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roles. According to a 2019 study by the Solar Energy Industry Association, 73 percent of the solar workforce is white, whereas 9 percent is Asian, 8 percent is Black, and 8 percent identifies as biracial. Women make up only about 23 percent of the entire solar workforce, and they make 74 cents for every dollar made by their male counterparts—more than 25 percent less.<sup>6</sup>

## Sources:

- <sup>1</sup> [forbes.com/sites/joshuarhodes/2020/02/12/is-the-us-coal-industry-almost-completely-burned-out/#7ab56fa594f0](https://forbes.com/sites/joshuarhodes/2020/02/12/is-the-us-coal-industry-almost-completely-burned-out/#7ab56fa594f0)
- <sup>2</sup> [latimes.com/environment/story/2020-02-04/coal-power-plants-western-us](https://latimes.com/environment/story/2020-02-04/coal-power-plants-western-us)
- <sup>3</sup> [seia.org/solar-industry-research-data](https://seia.org/solar-industry-research-data)
- <sup>4</sup> [bls.gov/iag/tgs/iag211.htm](https://bls.gov/iag/tgs/iag211.htm)
- <sup>5</sup> [cnbc.com/2018/09/19/the-us-states-leading-the-way-in-solar.html](https://cnbc.com/2018/09/19/the-us-states-leading-the-way-in-solar.html)
- <sup>6</sup> [thesolarfoundation.org/wp-content/uploads/2019/05/Solar-Diversity-Infographic.pdf](https://thesolarfoundation.org/wp-content/uploads/2019/05/Solar-Diversity-Infographic.pdf)

## Environmental Justice

### *What is environmental justice?*

Environmental justice refers to the fair and equal treatment of all people in environmental policy decisions. The reality of the U.S. energy economy is that not all people share the burdens of fossil fuel energy equally. Communities of color and low-income white families bear more of the health costs related to disease-causing pollution from fossil fuels than middle- and upper-income white families.

### *Who is impacted by air pollution?*

Environmental Protection Agency (EPA) studies show that Black and Hispanic people and low-income white people are more likely to live near polluters and breathe polluted air. It found that of all the groups studied, Black people are exposed to the most air pollution—on average 1.5 times more than white people—which is evidenced by the fact that the asthma rate in Black children is double that of white children.<sup>1</sup> The term used to describe the disproportionate pollution and related health consequences in communities of color is *environmental racism*.

In 2020, the Clean Air Act turned 50 years old. The signature piece of legislation administered by the EPA was the first to regulate air emissions. It is credited with significantly reducing pollutants, such as carbon monoxide and lead, and saving hundreds of thousands of lives and trillions of dollars in health care costs.<sup>2</sup> Despite these gains, however, the United States is still among the top countries for pollution-related deaths, and its carbon dioxide emissions have risen steadily since the Clean Air Act was passed in 1970.

The COVID-19 pandemic has underscored the urgent need to address air pollution and environmental racism. A Harvard study from early in the pandemic showed that communities with higher levels of air pollution experienced an 8 percent rise in the COVID-19 death rate. Early data also show that Black and Hispanic

patients have disproportionately died from COVID-19 due to underlying health and respiratory conditions tied to air pollution.<sup>3</sup>

You can check the current and historical air quality in your city at: [airnow.gov](https://airnow.gov) (or see the interactive map in the Maps & Data menu).

### *What is coal ash pollution and its impact?*

In addition to air pollution, coal-fired electric plants produce coal ash, a toxic waste found in the groundwater of places like Belews Creek, North Carolina, which is featured in the film. In fact, a 2019 study by the Environmental Integrity Project found that 91 percent of the 265 coal plants studied had elevated levels of toxic pollutants in nearby groundwater—including arsenic, a known carcinogen.

Much like with air pollution, coal ash disproportionately affects people of color. As Denise Fairchild of the Emerald Cities Collaborative mentions in the film, an estimated 68 percent of Black Americans live within 30 miles of a coal ash disposal site.<sup>4</sup> You can check out the Ash Tracker developed by the Environmental Integrity Project to see where coal ash is stored in your state: [ashtracker.org/index/facility](https://ashtracker.org/index/facility). (Note: Additionally, the top states with the highest concentrations of coal ash pollutants found in groundwater include Texas, North Carolina, Wyoming, Pennsylvania, Tennessee, Maryland, Utah, Mississippi, and Kentucky.<sup>5</sup>)

Before recent regulations prevented them from doing so, most energy companies dumped coal ash into unlined pits where nothing prevented the toxins from seeping into groundwater. In 2014, after a burst pipe owned by Duke Energy spilled 39,000 tons of coal ash into the Dan River—one of the country's worst environmental disasters—North Carolina passed the first state law regulating coal ash storage. Virginia and Illinois followed suit, as did the EPA, although the latter's regulations have since been rolled back.

Under the North Carolina law, Duke Energy agreed to excavate 22 unlined coal ash pits and move them to lined, dry pits over the next few years.<sup>6</sup> Customers complain, however, that Duke Energy raised electricity rates in order to pay for the cleanup during a time when the company recorded billions in profits.

### *What are examples of environmental justice?*

One example of an environmental justice policy is the idea that “polluters pay,” meaning that those that profited from polluting should pay for cleanup—not taxpayers via government-funded programs or utility customers through added fees.

Another example is to ensure diversity and inclusion in the growing renewables industry so that the communities harmed by environmental racism have equal opportunity to benefit from the transition to clean energy. Initial studies show that the solar industry is slightly more diverse than the overall American workforce, but still has ways to go in providing equal opportunity to workers of color and women workers. According to a 2019 study by the Solar Energy Industry Association, 73 percent of the solar

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workforce is white, while 9 percent is Asian, 8 percent is Black, and another 8 percent identifies as bi-racial. Only about 23 percent of the entire solar workforce are women and they make 26 cents less for every dollar made by their male counterparts.<sup>7</sup>

And a third example of environmental justice is to create policies that make it more affordable for low-income people and people of color to participate in renewable energy projects so they can experience the long-term benefits of lower utility bills. Learn more about energy affordability in the next section.

## Sources:

- <sup>1</sup> [theatlantic.com/politics/archive/2018/02/the-trump-administration-finds-that-environmental-racism-is-real/554315](https://theatlantic.com/politics/archive/2018/02/the-trump-administration-finds-that-environmental-racism-is-real/554315)
- <sup>2</sup> [unenvironment.org/news-and-stories/story/united-states-clean-air-act-turns-50-air-any-better-half-century-later](https://unenvironment.org/news-and-stories/story/united-states-clean-air-act-turns-50-air-any-better-half-century-later)
- <sup>3</sup> [e360.yale.edu/features/connecting-the-dots-between-environmental-injustice-and-the-coronavirus](https://e360.yale.edu/features/connecting-the-dots-between-environmental-injustice-and-the-coronavirus)
- <sup>4</sup> [naacp.org/wp-content/uploads/2016/04/Coal\\_Blooded\\_Action\\_Toolkit\\_FINAL\\_FINAL.pdf](https://naacp.org/wp-content/uploads/2016/04/Coal_Blooded_Action_Toolkit_FINAL_FINAL.pdf)
- <sup>5</sup> [earthjustice.org/sites/default/files/files/national-coal-ash-report-7.11.19.pdf](https://earthjustice.org/sites/default/files/files/national-coal-ash-report-7.11.19.pdf)
- <sup>6</sup> [pbs.org/newshour/show/the-danger-of-coal-ash-the-toxic-dust-the-fossil-fuel-leaves-behind](https://pbs.org/newshour/show/the-danger-of-coal-ash-the-toxic-dust-the-fossil-fuel-leaves-behind)
- <sup>7</sup> [thesolarfoundation.org/wp-content/uploads/2019/05/Solar-Diversity-Infographic.pdf](https://thesolarfoundation.org/wp-content/uploads/2019/05/Solar-Diversity-Infographic.pdf)

## Energy Affordability

### *Why is the energy economy considered “regressive”?*

Policy wonks refer to the current energy system as “regressive,” which means that people with low incomes spend a greater share of their income on utilities than do wealthy people. Energy is an essential human need that powers the ability for families to preserve food, access information and services, operate medical equipment, stay connected to others, and participate in education. And yet, low-income households are having to choose between necessities like medicine and electricity to make ends meet. Early in the COVID-19 pandemic, states issued moratoriums on shutting off electricity if customers were behind on bills, although many of the moratoriums ended long before the pandemic did.<sup>1</sup>

If solar power with net-metering were widely available to low-income people, it would have the potential to address economic inequity by relieving a major expense eating up their monthly budgets.

### *Isn't solar energy expensive?*

The cost of PV solar panels has decreased as much as 70 percent over the past decade, bringing the average price tag for a residential solar installation to about \$18,000 before tax credits.<sup>2</sup> But although solar with net-metering can save households money in the long run, the up-front installation expenses are still out of reach for many—especially for low-income households that could benefit most from solar.

In addition to net-metering, there are several innovations that have made solar more affordable to the masses. First, there are rebates available from the federal government, which until 2020 reimbursed homeowners for 30 percent for their solar installation in the form of a tax credit. The rate decreases each year, however, and is set to expire in 2022.<sup>3</sup> Several states also provide additional rebates—you can see the DSIRE database for a map of solar financing incentives by state and ZIP code: [dsireusa.org](https://dsireusa.org).

Group buys, or solar co-ops, like those in the film organized by Solar United Neighbors in Washington, D.C., refer to a group of buyers that team up to purchase solar panels at the same time from the same solar installer. With a larger order, solar installers can purchase supplies and process permits at a cheaper bulk rate and pass the savings on to the group of buyers. A typical household participating in a group of 10 or more buyers may see a 5 to 10 percent savings on their solar installation, depending on the company.

A few other forms of financing not discussed in the film include leasing, in which the household pays the cost of installation to a third party over the lifetime of the solar system, and Property Assessed Clean Energy, or PACE, in which municipalities set up special districts in which homeowners pay for solar improvements over time in the form of an extra charge on their tax bill. Some banks also offer homeowners low-interest mortgages, such as Fannie Mae's Homestyle Energy or Freddie Mac's Green Choice mortgages, which can be used to finance solar installations.

### *What is community solar?*

Even after government rebates and group discounts, solar is still out of reach for many low-income households. In addition, not all homes have rooftops that are suitable for solar installations. For these individuals, community solar offers an option to buy shares in a solar installation on community grounds, such as the one at Faith Community Church featured in the film. Assuming the utility company is cooperating—which was not the case for Faith Community Church—those that purchased shares in community solar would receive a credit on their monthly utility bill equal to their number of shares. Utility companies can voluntarily choose to do this or be required to by state legislation. Community solar projects are located in Washington, D.C., plus 39 states—Minnesota, Florida, Massachusetts, and New York are home to the majority.<sup>4</sup>

## Sources:

- <sup>1</sup> [washingtonpost.com/politics/2020/08/06/congress-under-pressure-states-lift-electricity-shutoff-bans-during-coronavirus-crisis/](https://www.washingtonpost.com/politics/2020/08/06/congress-under-pressure-states-lift-electricity-shutoff-bans-during-coronavirus-crisis/)
- <sup>2</sup> [climaterealityproject.org/blog/how-does-solar-power-work-anyway](https://climaterealityproject.org/blog/how-does-solar-power-work-anyway)
- <sup>3</sup> [solarunitedneighbors.org/learn-the-issues/solar-incentives](https://solarunitedneighbors.org/learn-the-issues/solar-incentives)
- <sup>4</sup> [nrel.gov/state-local-tribal/community-solar.html](https://nrel.gov/state-local-tribal/community-solar.html)



# DISCUSSING THE FILM



A conversation about power is a first step a community can take toward a clean energy future. These conversation frames and questions can help you and other viewers of the film think more about the main ideas. Organizers can use these to generate discussion at virtual events or on social media at #PowerTripPBS.

## Framing the Conversation

One of Jonathan's goals in making the film was to cut through partisan gridlock surrounding clean energy and engage people across the political spectrum on common ground. Prior to production, the film team consulted polling about which themes appealed to the widest audience. The results indicated that framing the conversation in terms of consumer choice, job opportunity, economic equity, reducing pollution, and corporate corruption had wide appeal across political groups. Framing the conversation in relation to climate change, on the other hand, met significant partisan roadblocks. For this reason, you do not hear the term climate change mentioned directly in the film, and this guide follows suit.

Climate change may still come up in your conversations about the film. Use your judgment if it feels like a productive way to discuss the issues in your community. If not, you can steer the conversation back to the common ground of clean energy with statements such as: "We can all agree that we want cleaner air and water and good-paying jobs for our community."

For additional resources related to climate change, check out this guide that Jonathan created with Climate Reality: [climateresearchproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions](https://climateresearchproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions).

# DISCUSSING THE FILM

If you are hosting a virtual event, you can pose the questions below to your audience members in an online chat and/or with speakers in a livestream panel discussion. It helps to review the questions with speakers in advance of the event to ensure that they are prepared to answer.

- 1 *Jonathan Scott's Power Trip* covers a lot of ground regarding energy production in the United States. What new information did you learn? Which scenes resonated with you?
- 2 In the film, Jonathan interviews people of all political persuasions. Based on their conversations, how might everyone find more common ground on the issue of energy?
- 3 What myths do you commonly hear about solar energy and other renewables? How did the film help to dispel myths and challenge propaganda coming from utility companies?
- 4 How does your community get its energy? What utility companies exist in your state, and how much of the energy they generate comes from renewable sources, such as solar, hydroelectric, or wind?
- 5 The film argues that utility monopolies have an outsized influence on energy policy at the expense of communities and individuals that want choice. Do you agree with the film's argument? Why or why not?
- 6 Why do you think it is difficult for former coal miners like Billy Noble to give up on the coal industry? What, if anything, could support workers whose industries are impacted by the transition to clean energy?
- 7 The film states that according to Denise Fairchild of the Emerald Cities Collaborative, an estimated 70 percent of Black Americans live within 30 miles of a coal ash disposal site. What is environmental racism and how does it happen? Who in your community is most affected by fossil fuel pollution?
- 8 David Pomerantz of the Energy and Policy Institute says in the film, "The current way our energy economy works is really regressive. It hurts the poor the most." What does he mean by this?
- 9 How can solar be a "field leveler" as it is described in the film? In what ways did you see people in the film use solar to empower themselves and their communities against racism, poverty, and injustice?
- 10 What do decision makers need to consider to avoid making racial and economic inequities worse during a widespread energy transition?
- 11 What does environmental justice mean to you? Which initiatives to promote environmental justice feel promising? What more would you like to see done?
- 12 What did electricity represent to Ruthie Lour Betsuie when she received it for the first time from the Navajo Tribal Utility Authority? What benefits beyond electricity did the Navajo solar installation offer its members?
- 13 What solar power projects exist in your community or in your state? Are there local community solar projects, like the ones found on the rooftops in Washington, D.C., or on church grounds in Greensboro, North Carolina?
- 14 What types of jobs are available in the renewable energy industry? What advice would you recommend to those seeking employment in the industry?
- 15 Are solar jobs in particular growing in your state? What opportunities for solar growth exist in your climate?
- 16 How diverse and inclusive is the solar industry? Are local job opportunities in renewables well distributed across race, gender, and geography?
- 17 Does your state have net-metering laws? How receptive to solar energy have your state lawmakers, public utility commission, or utility companies been?
- 18 Have you ever considered solar energy for your home or business? Would you consider it or recommend it to others after watching the film?
- 19 What is your vision for America's energy future? How would you like to see energy generation evolve over the next few decades?



# POTENTIAL PARTNERS

Connecting with an organization can provide you with the support network to get more involved with the issues. For event organizers, these partner recommendations are great options to find subject matter experts for livestream panel discussions or to support event promotion.

- **Solar advocates** like Jonathan Scott can educate viewers about efforts to grow local availability of solar. Search your local business listings for solar installers or nonprofit organizations that support homeowners in transitioning to solar energy. You can also check to see if your state has a campaign from Solar United Neighbors, which is featured in the film: [solarunitedneighbors.org/solar-in-your-state](https://solarunitedneighbors.org/solar-in-your-state) or Vote Solar: [votesolar.org/usa](https://votesolar.org/usa).
- **Environmental organizations or local leaders** working on municipal, state, or national clean energy policies can introduce viewers to the campaigns to watch. Although Indie Lens Pop-Up events cannot promote direct advocacy on policy, these groups can still provide information about the policies that exist and how they propose to change them. See if there is a Climate Reality chapter in your state: [climaterealityproject.org/chapters](https://climaterealityproject.org/chapters).
- **Equity and justice groups** are dedicated to ending environmental racism and promoting a level playing field for all people to benefit from clean energy. See if your city is included in the Emerald Cities Collaborative, which is featured in the film: [emeraldcities.org/cities](https://emeraldcities.org/cities), or reach out to a local member of the Climate Justice Alliance: [climatejusticealliance.org/members-of-the-alliance](https://climatejusticealliance.org/members-of-the-alliance).
- **Democracy organizations** can educate viewers about their work to end political corruption and the influence of utility lobbyists. They can also provide ways for your audience to get civically engaged, such as with a voter registration drive. Reach out to the team at Represent Us to see if there is a local spokesperson near you: [represent.us/about](https://represent.us/about).
- **Native nations** are often at the forefront of the clean energy transition—like the Navajo Nation featured in the film. You can inquire with your local Native nation for recommendations of tribal energy officials or look through the projects installed by Native Renewables: [nativerenewables.org/outwork](https://nativerenewables.org/outwork) or Lakota Solar Enterprises: [lakotasolarenterprises.org](https://lakotasolarenterprises.org) to see if there is one near you.
- **Community housing organizations or community building groups** can share information about initiatives they are working on with neighborhood residents. Look for grassroots organizations that are democratically run by members of the neighborhoods—like the neighborhood associations and tenant-run cooperatives featured in the film. You can also search for housing advocates affiliated with Rebuilding Together: [rebuildingtogether.org/find-your-local-affiliate](https://rebuildingtogether.org/find-your-local-affiliate), or NeighborWorks America: [neighborworks.org/Our-Network/Network-Directory](https://neighborworks.org/Our-Network/Network-Directory).
- Invite officials from **city planning or urban development departments** to talk about new initiatives planned in your community. This can allow for community members to learn about and provide input on programs and policies that will impact their neighborhoods. It may be helpful to feature city planners alongside community-based housing justice advocates so that audience members can hear from multiple voices working in the community.

# ENGAGEMENT IDEAS



There are other ways to engage with the film beyond discussing it with friends and neighbors. Here are some virtual engagement ideas to include as part of a virtual screening or to take on individually after watching the film.

- Organize a virtual **solar open house** to show your neighbors a solar installation up close. You could create a virtual tour using video or a slideshow to show at a screening or upload to social media. The National Solar Tour offers a helpful toolkit for recording video open houses: [nationalsolartour.org/upload-your-video](https://nationalsolartour.org/upload-your-video).
- Start a **group solar buy** in your community. You could use an Indie Lens Pop-Up virtual event to sign up homeowners that are interested in joining together to purchase solar panels at a discounted rate. You may want to partner with an organization that has experience coordinating group buys to help see the project through to completion, for example, a solar co-op from Solar United Neighbors: [solarunitedneighbors.org/co-ops](https://solarunitedneighbors.org/co-ops). You could also ask a local solar advocate for recommendations of group buy coordinators in your state.
- Ask local leaders to adopt a **100% clean energy commitment** for your municipal government or your institution, such as your public media station, library, school, or church. Check out the Sierra Club's Clean Schools Toolkit for practical advice. Request the toolkit here: [sierraclub.org/climate-parents/100-clean-energy-school-districts](https://sierraclub.org/climate-parents/100-clean-energy-school-districts).
- Host a virtual **solar career fair** to help connect your neighbors with local job and training opportunities in the solar industry. This could be done virtually by inviting a handful of employers to record short video pitches about their job opportunities with information about how to apply. Check to see if the U.S. Department of Energy has funded a local solar training program: [energy.gov/eere/solar/solar-training-and-education-professionals-step](https://energy.gov/eere/solar/solar-training-and-education-professionals-step) or see if Solar Ready Vets, which trains veterans in solar installation, has a program at a military base near you: [energy.gov/eere/solar/solar-ready-vets-pilot-program](https://energy.gov/eere/solar/solar-ready-vets-pilot-program).
- Organize a virtual **energy innovators expo** to introduce your community to new applications of clean energy technology. Again, this could be done virtually using prerecorded video demonstrations or you could host virtual breakout sessions in which innovators demonstrate their inventions live and answer questions in small groups. You can check with the engineering department at your local university to find out about clean energy technology that local students are developing or see if there is a local finalist from the U.S. Department of Energy's Solar Decathlon: [solardecathlon.gov/2020/design/challenge-results.html](https://solardecathlon.gov/2020/design/challenge-results.html).



# RESOURCES



There are many more resources for learning about the issues covered in *Jonathan Scott's Power Trip*. The organizations below are just a few dedicated to educating and advocating for energy consumers.

- [pbs.org/powertrip](https://pbs.org/powertrip)—This is the PBS *Independent Lens* webpage for the film *Jonathan Scott's Power Trip*.
- [powertriptruth.com](https://powertriptruth.com)—This is the filmmaker webpage for *Jonathan Scott's Power Trip*.
- [climaterealityproject.org](https://climaterealityproject.org)—The Climate Reality Project was started by Al Gore to combat climate change.
- [climaterealityproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions](https://climaterealityproject.org/blog/jonathan-scott-answers-climate-reality-solar-energy-questions)—Jonathan Scott teamed up with the Climate Reality Project to create this helpful resource all about solar power.
- [solarunitedneighbors.org](https://solarunitedneighbors.org)—Solar United Neighbors empowers community members to install rooftop solar and fight for energy rights.
- [energyandpolicy.org](https://energyandpolicy.org)—The Energy and Policy Institute is a watchdog organization dedicated to countering attacks from utility companies against renewable energy.
- [votesolar.org/usa](https://votesolar.org/usa)—Vote Solar works to make solar power more affordable and accessible by changing energy policies and programs.
- [represent.us](https://represent.us)—Represent Us is a nonpartisan group of independents, progressives, and conservatives defending freedom and democracy.
- [emeraldcities.org](https://emeraldcities.org)—Emerald Cities Collaborative is a nonprofit working for a sustainable environment and strong local economies for all.

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ITVS is a San Francisco-based nonprofit organization that has, for over 25 years, funded and partnered with a diverse range of documentary filmmakers to produce and distribute untold stories. ITVS incubates and co-produces these award-winning films and then airs them for free on PBS via our weekly series, *Independent Lens*, as well as other series through our digital platform, OVEE. ITVS is funded by the Corporation for Public Broadcasting. For more information, visit [itvs.org](http://itvs.org).

## INDEPENDENT LENS

*Independent Lens* is an Emmy® Award-winning weekly series airing on PBS Monday nights at 10:00 PM. The acclaimed series, with Lois Vossen as executive producer, features documentaries united by the creative freedom, artistic achievement, and unflinching visions of independent filmmakers. Presented by ITVS, the series is funded by the Corporation for Public Broadcasting, a private corporation funded by the American people, with additional funding from PBS, the John D. and Catherine T. MacArthur Foundation, Wyncote Foundation, and the National Endowment for the Arts. For more visit [pbs.org/independentlens](http://pbs.org/independentlens).

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