



POWER TO THE PEOPLE

Toward Democratic Control of Electricity Generation



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THE WORKER INSTITUTE
ADVANCING WORKER RIGHTS AND COLLECTIVE REPRESENTATION





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Trade Unions for Energy Democracy (TUED) is a global, multi-sector initiative to advance democratic direction and control of energy in a way that promotes solutions to the climate crisis, energy poverty, the degradation of both land and people, and responds to the attacks on workers' rights and protections.

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Power to the People

Toward Democratic Control of Electricity Generation

The term “energy democracy” is now part of the trade union discourse on energy and climate change in a way that was not the case just two or three years ago. A growing number of unions, as well as regional bodies like the Trade Union Confederation of the Americas, are calling for democratic control over energy, for a “reclaiming” of the energy sector to the public sphere and for a just transition to a renewables-based, low carbon economy.

But the actual and potential content behind the term *energy democracy* needs to be fleshed out. This working paper, *Power to the People: Towards Democratic Control of Electricity Generation*, has been written to help unions get a better grasp of two things: first, what is happening *now* and, second, what *could happen* in the future.

What emerges from the pages that follow is that the struggle for democratic control of power generation is expressing itself on several “fronts.” Three fronts are identified and discussed here, and these are very much in the here and now. Energy democracy is being expressed through the growth of cooperatives, municipal control of certain functions and operations, and reform efforts directed at utilities. However there is a fourth front that exists mainly in the form of historical example, namely the “public works” approach to energy transition that worked so successfully during the middle decades of the last century. This approach is also discussed below.

It is our view that unions can engage in this struggle in a manner that could increase worker and community control over electrical power generation and, potentially, build unions.

But this is not a blueprint for action, more of a mapping exercise that could further inform discussion across the international trade union community.

Expressions of energy democracy presently remain very much on the margins of the global economy and they are a long way from disrupting the established energy order. But this could change—especially if unions become seriously engaged.

An Independent Trade Union Approach

A more comprehensive framing of the need for energy democracy, as well as the limits of existing market-driven approaches, can be found in the 2012 TUED document titled *Resist, Reclaim, Restructure: Unions and the Struggle for Energy Democracy*.¹ The paper explains why the present direction of the world’s energy systems constitutes a planetary emergency, and existing policy approaches to energy, whether neoliberal or driven by “resource nationalism,” will lead to intolerable levels of global warming, pollution, and other social and ecological problems. It explains why a democratic and “public goods” approach to moving from fossil fuels to renewable energy is urgently needed.

Resist, Reclaim, Restructure is part of a growing effort to further develop an *independent* trade union approach to energy transition and climate protection. By independent we mean independent of the interests of the for-profit fossil fuel companies as well as marketized state-owned or “parastatal” companies. But trade unions should also be independent of some

of the well-established environmental groups. These groups often support “renewable energy by any means necessary,” an approach that, by definition, risks pushing worker and community concerns to the margins. Many such groups have faith in a policy approach that “levels the playing field” by way of phasing out subsidies to fossil fuels so that renewable energy can “compete fairly” with coal, oil, and gas. Unions recognize that the problems posed by the immense economic and political power of the fossil fuel corporations cannot be addressed by transferring comparable power to large, for-profit renewable energy multinationals. Unions also know that an increase in renewables will not automatically lead to a decrease in fossil fuel use or, for that matter, an increase in worker rights and protections. In short, there is no automatic alignment between renewable energy and worker rights and protections.

It could be argued that, given the environmental benefits, an exploitative renewables-based system is better than an exploitative fossil-based system. But this should not be the grounds on which we plan our energy future—as will be made clear below. Another energy system is therefore necessary—one that is democratic, equitable, and truly sustainable. But is it possible? Much has been said by environmental organizations and concerned scientists about the renewable energy’s potential to meet the world’s needs, but there has been too little discussion about who determines or defines what those needs are. It is therefore important to challenge any scenario that sees expanding energy use as inevitable. A comprehensive trade union approach to energy transition should be as concerned about conserving energy as it should be about generating it.

The paper consists of four parts.

Part One reiterates some of the more salient points of *Resist, Reclaim, Restructure* and updates them. It will again show how the liberal

policy discourse around renewable energy continues to be seriously flawed. First and foremost, this liberal discourse frequently displays unwarranted optimism in the capacity of private markets to deliver a global transition to renewable energy. Its advocates seldom challenge the idea that renewable energy must play by the rules of the market—in other words, that it must out-compete fossil-based power if it is to become the world’s dominant source of energy. But the speed and scale of renewable energy deployment that science tells us we need clearly require non-market and “public goods” approaches, grounded in local actions.

Part Two examines energy-related cooperatives in the renewable energy (RE or renewables) sector. These are becoming common in the global North, but they can play a very important role in the global South where 1.3 billion people still have no reliable or clean source of electrical power. This section will examine the potential contribution of renewable cooperatives to energy democracy, provide a brief overview of the sector, and make reference to some of the political debates that surround energy cooperatives. The variety of different cooperative types is laid out in order to provide unions with a nuanced view of this expanding landscape.

Part Three looks at the potential to reclaim electrical power generation by way of using political authority at the municipal level. It focuses on efforts to “remunicipalize” electrical power in numerous German cities and, increasingly, in cities around the world. This approach amounts to taking over grids and using political authority to procure electricity from renewable energy suppliers and thus reclaim an important part of the energy system. Part Three also looks at the potential of reforming privately owned utilities themselves—a process that is connected to the municipal approach but also carries with it distinct features and challenges. Here the goal is either to “reclaim” the renewables-resistant



utility in a way that can open the door to the deployment of more renewable energy, or to mandate that the utility do the same.

Part Four looks at the historical experience of public works programs in the context of the New Deal in the U.S. and, in particular, the Rural Electrification Administration (REA)—a model of energy transition and state-cooperative interaction and partnership that was successfully replicated in numerous countries during the post-World War II period. In a public debate dominated by neoliberal assumptions glorifying the wonders of private markets, calls for radical

government-driven interventions remain very much on the margins. But given that business as usual is not an option and that incremental market-based approaches are generally failing to deliver renewable energy at the speed and scale required to meet science-based targets, no option can be rejected purely because it is regarded as politically impossible at this point in time. The case for a “Renewable Energy Administration” (a new, and different REA) in all of the major countries deserves serious consideration in the light of the civilizational challenges posed by climate change, pollution, and advancing ecological degradation.

1. The Energy Emergency and the Limits of Profit-Based Approaches

Lead author: Sean Sweeney

The TUED paper *Resist, Reclaim, Restructure: Unions and the Struggle for Energy Democracy* documented how the present direction of the world’s energy systems amounts to a profound threat to all living things.² The 2012 paper also documented how the urgently needed transition to a renewables-based and low carbon energy system is not happening fast enough, and it urged trade unions to adopt an independent approach, one anchored in democratic control and social ownership of energy as a means to address the multiple features of the present crisis. Rather than restate all of the arguments expressed in *Resist, Reclaim, Restructure*, the remainder of this opening section will consist of some supplementary points regarding energy trends and the latest climate science, both of which reinforce the need for the kind of radical policy shift we propose.

Energy Trends

Liberal commentators are fond of reminding us that we are presently witnessing a rapid growth

of renewables. On a percentage basis, renewable energy is growing quickly. Global wind energy output was up 21 percent in 2013 and solar grew even faster, up by 33 percent.³ In the same year, coal use grew just 3 percent.⁴

In the debates over the future of renewable energy, there are a growing number of references to what might be termed the “smart phone scenario,” where renewables’ enthusiasts maintain that the economics of renewable energy are becoming irresistible for investors and consumers alike. Falling prices for renewable energy technologies could soon—very soon—lead to a precipitous collapse in investments in fossil-based power. The projections of the International Energy Agency (IEA), which suggest only a limited growth in the *proportion* of renewables in the global energy mix over the next 20 years, are often brushed aside. It is often claimed that, just as no one predicted the rapid collapse of the old but trusty telephone systems as a result of the introduction of the cell phone, analysts are failing to see that centralized fossil-based energy generation will crumble under the weight of “renew-

ables populism,” as millions and eventually billions choose to generate their own electrical power because it is both cheaper (or soon will be) and cleaner.

This is a one-sided and overly optimistic assessment. The recent growth of renewable energy, usually measured in “installed capacity,” creates an impression that the “decarbonization” of the world’s energy supply is already well under way, so the existing mix of policies driving renewables must therefore be working. This “steady as you go” approach has not sufficiently factored in either the expansion of energy use overall or the need to reduce emissions dramatically in order to meet science-based targets. Also, in absolute terms, the three percent annual increase in coal use equaled approximately two million barrels of oil equivalent per day of additional energy consumption. Solar and wind together grew by about 620,000 barrels of oil equivalent per day in 2013. Coal consumption therefore increased more than three times the level of increase of solar and wind energy combined. During the last decade (2003-2013) the growth in global coal use was seven times larger than the combined increase in wind and solar consumption.⁵

The optimistic assessment of renewables’ growth also fails to address the fact that fossil fuel investments are increasing rapidly, too. According to the IEA, for every dollar invested in renewable energy in 2013, more than four dollars was invested in fossil fuels. It is true that fossil-based (and nuclear) power generation infrastructure is becoming old and dilapidated in some OECD countries and a significant number of these plants will be retired in the years ahead. Therefore some of today’s investment in fossil fuels is to sustain existing capacity by compensating for declining production from existing oil and gas fields and to replace power plants and other assets that reach the end of their productive life.⁶ The amount of investment committed to replacing existing fossil

fuel infrastructure will inevitably grow in years to come.

But high fossil-fuel investment levels also reflect the fact that there is no shortage of commercially viable coal, oil, or gas today and—with the rise of “unconventional” fuels like shale gas and tar sands oil—no serious shortage of fossil-based energy anticipated in the foreseeable future. A recent study calculated that G20 governments are spending roughly \$88 billion per year subsidizing exploration for fossil fuels. Total subsidies for fossil fuels are around \$750 billion annually.⁷ In the electrical power sector, there are presently around 280 gigawatts (GW) of new coal-fired generation under construction globally.⁸

During the past year, the tendency towards optimism at all costs has expressed itself in the reactions to the recent trends in coal use.⁹ In 2014 the levels of coal use dropped quite dramatically (led by China) and this purported “turn from coal” saw more than 320 GW of proposed coal fired power generation cancelled. This added up to a 23 percent reduction in proposed new capacity—a serious slump.

However, the 23% reduction needs to be viewed through a wider historical lens. In 1990 (the international benchmark for measuring emissions levels and trends) the level of new coal-fired power generation capacity added was around 17 GW globally, although the annual average around this time was a little over 20 GW. But from 2005 to 2013, approximately 722 GW of new capacity was added to the coal fleet (and a little under 100 GW retired).¹⁰ So even with the dramatic fall between 2012 and 2014, the annual level of new installed capacity was more than twice the level of 1990. Coal still supplies 75% of China’s electrical power, and coal-fired generation is expected to double by 2040.¹¹ China is today consuming half of the world’s coal and the country’s coal-related emissions have grown by roughly nine

percent per year in the past decade. Over half of global CO₂ emissions growth between 2002 and 2012 was due to increased coal burning in China, equivalent to the EU's entire emissions in 2011.¹² And in 2014 the amount of new coal-fired generation capacity in the "proposal pipeline" worldwide was still estimated to be a staggering 1,080 GW despite the 23% fall.¹³

Of course, IEA and industry projections for the global energy mix twenty years from now may turn out to be wrong, but the investment patterns of the recent past tell a sobering story. According to the IEA,

Annual capital expenditure on oil, gas and coal extraction, transportation and on oil refining has more than doubled in real terms since 2000 to surpass \$950 billion in 2013. The epicenter of increased oil and gas investment activity has been North America, with the rapid expansion of shale gas and tight oil output, but investment in other parts of the world has also been on an upward trend.¹⁴

Meanwhile in 2013 total investment in renewable energy was only \$244 billion, falling from a peak of almost \$300 billion in 2011.¹⁵

The main story is this: the use of renewable energy and fossil-based power are *both* expected to grow in order to meet rising global demand. Higher levels of energy use are good for renewable energy companies, and this partly explains the "renewable energy is the future" optimism surrounding an industry that is enjoying a period of almost uninterrupted expansion. But when it comes to having an impact on emissions and pollution levels, the present direction of the world's energy systems leaves little room for optimism.

Too Late for Two Degrees?

Global emissions are rising steadily. The IEA's "Business as Usual" scenario for energy trends warns that the upward curve of energy use will

lead to more energy-related emissions. This will lead to destructive levels of global warming during the lifetimes of children who have already been born. The World Health Organization has sounded a similar alarm in terms of the catastrophic health impacts of the continued and growing use of fossil fuels. Levels of renewable energy deployment will need to accelerate dramatically to alter this state of affairs. The IEA estimates that in order to stay below the 2 degree Celsius limit, the share of renewables must increase to 65-80% of global electricity production by 2050.¹⁶

The IPCC's most recent *Synthesis Report* (released in November 2014) notes: "Climate change is being registered around the world and warming of the climate system is unequivocal. Since the 1950s many of the observed changes are unprecedented over decades to millennia." The period from 1983 to 2012 was likely the warmest thirty-year period of the last 1,400 years in the Northern Hemisphere. Atmospheric concentrations of carbon dioxide, methane and nitrous oxide are "unprecedented in at least the last 800,000 years." The report also issued a dire warning about the upward trajectory of greenhouse gas emissions levels. Emissions from fossil fuel use have risen a staggering 61% since 1990. To stay within two degrees Celsius of warming (the established international target) emissions "should drop by 40 to 70 percent globally" before 2050 and "to zero by 2100," according to the *Synthesis Report*. For developed countries, this will require an 80% reduction by 2050 based on 1990 levels.

However, it is today widely accepted that two degrees Celsius can no longer be considered "safe." The one degree Celsius of warming that has already occurred has resulted in severe droughts, wild fires, superstorms, and displacements of people. Therefore many scientists believe that 1.5 degrees Celsius should be recognized as the new international target. Regardless of what the target is, the IPCC says

that fossil fuels must be phased out completely.

The science makes it clear that the energy base of the global economy needs to be completely transformed during the next two or three decades. Renewables need to be scaled up dramatically and fossil-based power generation and transportation needs to be drastically reduced in the short term and phased out altogether by 2100. Energy conservation must become a policy priority.

The extent of the “mitigation” challenge was illustrated in a 2013 PricewaterhouseCoopers (PwC) study titled *Too Late for Two Degrees?* According to the PwC report, improvements in carbon intensity now need to exceed 5.1% every year from now until 2050 in order to avoid crossing the dangerous two degree Celsius threshold, an annual fall that is virtually unprecedented in peacetime. Not surprisingly, PwC concludes, “Governments’ ambitions to limit warming to 2°C appear highly unrealistic;” and therefore, “businesses, governments and communities across the world need to plan for a warming world—not just 2°C, but 4°C, or even 6°C.”¹⁷

Science, Speed, and Scale

The *Too Late for Two Degrees?* study by PwC serves as a reminder that optimism about renewable energy must be considered in the light of what it will take to stop “business as usual” and reduce emissions. Importantly, echoing the IPCC, the PwC report states that the required reductions in carbon are technically achievable, but “*The only way to avoid the pessimistic scenarios will be radical transformations in the ways the global economy currently functions*” (emphasis added).

Though it does not appear as an action point in the PwC report, one of the “radical transfor-

mations” must involve advancing energy democracy.

We understand energy democracy to start from the premise that there is more than enough wind, solar, and wave power to meet existing demand, and also meet the needs of the 1.4 billion people who currently have no reliable source of power. The Energy Information Agency (EIA) reports that the maximum electricity consumed worldwide at any given moment is about 12.5 trillion watts. This is just a tiny fraction of the energy available through renewable sources.¹⁸

The massive scaling up of renewable energy, many studies suggest, appears to be feasible from a technical standpoint. In a landmark 2009 essay in *Scientific American*, Jacobson and Delucchi argued that the complete decarbonization of global energy by 2030 is technically possible. According to their study, 50% of the power needed in 2030 (as defined by mainstream policy leaders) could be generated by 3.8 million large (five megawatts) wind turbines. A further 40% could be generated by solar PV and concentrated solar power (CSP)—requiring about 89,000 photovoltaic and concentrated solar power plants each averaging 300 megawatts. The non-rooftop photovoltaics and concentrated solar plants would occupy about 0.33 percent of the planet’s land. Jacobson and Delucchi also note that “if we stick with fossil fuels, demand by 2030 will [rise] requiring about 13,000 large new coal plants, which themselves would occupy a lot more land, as would the mining to supply them.”¹⁹

The fight for energy democracy is therefore inspired by a few clear and compelling ideas. First, “business as usual” is not an option, because six degrees of warming is simply not acceptable. Second, the future of life on earth should not depend on whether or not renewable energy can compete successfully with fossil-based energy or not. If the logic of the

market is not compatible with the basic survival of the human species and other forms of life, then another logic must take its place—the logic of non-market, needs-based approaches, extending social ownership in order to bring economic life into alignment with ecological necessity and planetary limits. Third, if a 1.5°C or a 2°C world is indeed technically possible, then there is an urgent need to make it a reality by shaping policy and politics accordingly. Finally, unions and social movements have the power to help create a new energy system, one that will be located at the heart of a new political economy grounded in equity, true sustainability, and economic democracy. The key tenets of energy democracy, as they have been formulated in Trade Unions for Energy Democracy, are as follows:

- ⇒ Massive deployment of renewable energy to meet climate goals and reduce pollution;
- ⇒ Democratic direction and control of all energy, a just transition that works;
- ⇒ Securing a strong union presence in all parts of the energy sector;
- ⇒ Energy for all—addressing energy poverty in the North and South.

This paper will explore some concrete possibilities for moving towards an energy system based on these or similar principles in order to help further advance an alternative to the present system, one driven by profit, repression, and almost immeasurable damage to health, the atmosphere, and other ecosystems.

2. Energy Cooperatives

Lead author: Kylie Benton-Connell

When people hear the term “community owned and operated energy,” a cooperative is often the structure that comes to mind. This section will look at renewable energy (RE) cooperatives and their potential role in advancing mass-scale, community-owned, and democratically controlled renewable energy. After beginning with a quick sketch of the sector, we will move to a political analysis of renewable cooperatives, looking at the structural features of different kinds of organizations and what implications they might have for workers and unions. Finally, we will highlight some possibilities for collaboration among unions and cooperatives. Looking at these examples, we have begun to map possibilities for a more proactive approach to cooperatives from unions than is currently commonplace.

Cooperatives make up only a small proportion of renewable energy production and distribution, and an even smaller fraction of the energy sector overall. But they appear to be multiplying at a brisk rate across the world. The following figures indicate the size of growth:

- ⇒ In Germany there are over 800 renewable energy cooperatives, with about 200,000 people involved.²⁰
- ⇒ About a quarter of Denmark’s wind energy is cooperatively owned, by about 150,000 members.²¹
- ⇒ Renewable energy cooperatives include large-scale operations: Som Energia cooperative supplies 14,000 customers with renewable energy in Spain;²² Ecopower in Belgium serves just over 1% of the country’s population, with 40,000 members;²³ In Italy, as of 2009, there were 32 renewable electric cooperatives, with over 24,000 mem-

bers and 40,000 customers;²⁴ Enercoop, in France, has 50,000 members.²⁵

The proliferation of RE cooperatives can be traced to a variety of factors. A literature review compiled by the ILO suggests that supportive government policies have encouraged groups to establish cooperatives. The ILO review also attributes the expansion of cooperatives to growing public interest in both “green issues” and the cooperative model of ownership in general.²⁶ Cooperatives have also arisen in the face of government *in*action; the absence of supportive local or national legislation has pushed groups in the struggle to expand renewable energy towards the Do-It-Yourself ethic of cooperatives.

RE cooperatives take different forms; they have distinct structures, scales, financing, and politics. In what follows, we will consider the expansion of RE cooperatives and what options for engagement exist for unions both in the present moment and, potentially, in the future.

Political Landscape

The presence of cooperatives in the energy sector is not a recent development. The first known electric cooperative in the world was the *Società cooperativa per l'illuminazione elettrica*, a hydro-power operation founded at Chiavenna, Italy, in 1894.²⁷ In the years that followed, cooperatives became a common way to achieve rural electrification across the world.²⁸ Communities often created electric cooperatives where the extension of energy infrastructure was too expensive (and, often, potential customers too poor) to be of interest to either profit-driven companies or municipalities with miniscule tax bases.²⁹ Rural electrification nevertheless forged ahead as a result of state planning and support for cooperatives. The United States led the way in state-supported, cooperative extension of the electrical grid in the 1930s, and other countries

followed a similar path in the postwar period. This model of electrification continues to be influential and has been picked up in concert with renewable energy in state-led programs such as those pursued in Bangladesh (where 70 rural energy cooperatives employ 16,000 people) and Nepal.³⁰

In the past, electricity cooperatives supported by state programs often involved bringing centrally generated power (for instance, from a large hydroelectric dam, or coal-fired power station) to remote or sparsely populated communities. When they operate with decentralized infrastructure, today's renewable energy cooperatives can grow alongside significantly different social arrangements and policy configurations. In their discussion of energy transition in Germany, Timothy Moss, Soeren Becker, and Matthias Naumann describe a process that is not “a simple pattern of policy roll-out from state to local levels,” but rather “a mixture of top-down policy and bottom-up initiatives [...] generating heterogeneous actor constellations and organizational landscapes.”³¹

Cooperatives have worked in concert with a wide range of political agendas. After the high-profile implementation of a nation-wide rural electrification program under the New Deal, U.S. administrations were keen to export the model during the cold war. Once regarded by the political right as an example of “creeping socialism” during the 1930s and 1940s, energy cooperatives became part of the U.S. attempt to win “hearts and minds” in the Global South. In one striking example, the U.S. government proposed that a giant dam be built on the Mekong River in order to bring electrification to Vietnamese villages. President Lyndon Johnson declared in unambiguous terms the political work he wanted such interventions to do: “I want to leave the footprints of America in Vietnam [...]. We're going to turn the Mekong into a Tennessee Valley.”³² At the other end of the ideological spectrum,

communist China also made cooperatives an important element of rural electrification—which simultaneously served to promote the

advantages of Sino-Soviet cooperation (before 1960) and to showcase the achievements of socialist planning.

Utility-Scale Electricity Cooperatives in the U.S.

The story of the big electricity cooperatives in the U.S. established during the 1930s and 1940s under the Rural Electrification Administration (REA) is also instructive. Today, a significant number of these cooperatives have drifted away from the political role they played in their early years. What were once participatory organizational structures, designed to allow for local and democratic decision-making, have in some instances become far more static and characterized by minimal member participation. Some stories of cronyism and profiteering have become public, as in the cases of the Pedernales, Texas, and Cobb County, Georgia, cooperatives, where management faced charges including theft, money laundering, and racketeering.³³

These cooperatives have been reluctant to embrace renewable energy. When they do attempt to develop renewables, it tends to be through agreements with counterparts in the private sector. The National Renewables Cooperative Organization (NRCO—the association that works with U.S. electricity cooperatives to expand their holdings in renewable energy) presents itself as a fairly corporatized source of technical assistance. In its public materials, NRCO makes no mention of equity, climate change, or labor standards. For cooperatives responding to NRCO's message, investment in renewables may be more of hedge against future government regulation than a serious commitment to a clean energy future.

That said, the nominally democratic structures of these cooperatives open the door to reform agendas, and successful examples of grassroots community campaigns in this arena can be found. In the U.S., in the wake of the scandal surrounding the management of the Cobb County cooperative, reform candidates were elected to the governing board, with unprecedented rates of member participation. The cooperative then withdrew its support from a proposed coal-fired power plant and dedicated new investment in solar generation through a power purchase agreement.³⁴ Other campaigns by environmental and community groups such as the Sierra Club, the Community Power Network, and Renew East Kentucky point to the potential for reform of rural cooperatives to advance both the spread of renewables and the democratization of energy.³⁵ In Argentina, the peak body for electricity cooperatives has rolled out a program for its affiliates supporting the launch of new renewable projects.³⁶

Some contemporary advocates of cooperatives claim that they are “relatively free of political entanglement, representing people of all viewpoints”³⁷ or that “old ‘left’ and ‘right’ ideologies associated with economic models” do not apply.³⁸ This attempt to de-politicize the cooperative organizational structure indicates

how it can be incorporated into a range of political projects. A starker example is found in this recent claim that Estonian renewables advocates, wary of the possible associations with communism, are “relabeling cooperatives—which are helping to reduce reliance on Russian gas—as ‘people’s capitalism.’”³⁹

It follows that in order to assess the options for engagement, unions and workers must first clarify the political commitments and entanglements of any given cooperative, cooperative model, or movement. In particular, it is important to distinguish between cooperatives that are formed solely for *member* benefit and those that are formed for *public* benefit. Obviously a cooperative that is not accountable to any group beyond its membership will be shaped primarily by the wishes of those members. It is worth noting here that the income from cooperatives is one in a cluster of reasons that local, community-owned renewable projects may have stronger community support than those owned by remote corporations. The popularity and widespread public support for wind energy in Denmark is often attributed to the high number of cooperatives in that country's sector.⁴⁰ Needless to say, cooperative members' preferences may not include employing a unionized work force or management practices that respect workers' rights to organize.

Some RE cooperatives are for-profit entities, such as the high-profile Canadian company WindShare. The main concerns of for-profit cooperatives are likely to be similar to those of any profit-seeking enterprise, including keeping costs—including labor costs—low and revenues high. However, many cooperatives have structural limitations, either self-imposed or as a result of regulatory restrictions. These include elements such as the size of dividends that can be paid out or the number of shares that any individual member can hold.

Such restrictions are designed to distinguish cooperatives from standard for-profit firms. Nevertheless, some commentators argue that cooperatives nonetheless tend towards "capitalist recidivism" or "market isomorphism."⁴² In other words, they argue, there is a tendency for cooperatives to become more like the companies from which they once differentiat-

ed themselves. This could express itself when worker cooperatives "pull the ladder up after themselves" by hiring wage workers rather than extending the benefits of co-ownership to new employees, thus keeping key benefits restricted to a small circle of original or founding members.⁴¹

The Solidarity Economy

The common intuition that cooperatives are in some way aligned with progressive political agendas has merit. There is not space here for a detailed, transnational history of the relationships between unions and cooperatives. Suffice it to say that some countries—such as Brazil, Argentina, and Uruguay—have histories of much closer collaboration between cooperatives and progressive political movements than do others. In Argentina, consumer electricity cooperatives bargain with the power workers union. There was a debate in the Argentinean union movement about whether cooperative workers should push for managerial membership or whether such a move would weaken their union affiliation.⁴²

In the context of strong "solidarity economy" networks, such as those in Québec (Canada), northern Italy, or Brazil, RE cooperatives might be expected to align themselves with the politics of social justice, but they are still relatively uncommon. Some theorists argue that cooperatives skew towards progressive politics—that there is a "spillover" effect where participants become engaged with other political work as a result of their experience as cooperative members.⁴³ A few RE cooperatives have been founded with an explicit social justice agenda: Co-op Power, a cooperative in Massachusetts (United States) that provides installation services—and is moving towards developing communally-owned renewable projects—explicitly states its vision as helping to build a "multi-racial, multi-class movement." The Black Mesa Solar

Project includes an effort to build a large, cooperatively owned solar plant in Navajo country (in Arizona, United States) where community members are fighting to shut down mining and coal-fired power production on their land.⁴⁴ While non-profit cooperatives often try to keep consumer costs low, they may face roadblocks when it comes to giving discounted rates to low-income customers. The Som Energia cooperative in Spain, for instance, cannot currently offer a “social tariff” because the cooperative does not receive the state subsidy that enables other large suppliers to offer cheaper electricity to their low income customers.⁴⁵

Worker-owned and managed cooperatives are presently not common in power generation, transmission, or distribution, though they appear in many allied industries, like rooftop solar installation (see text box below). The Energy

Solidarity Cooperative in Oakland, California (United States), has a hybrid structure, where both workers and consumers/producers are owners of the enterprise. In this instance the latter two fall under the same category, as the cooperative installs rooftop solar on private homes. The Val-Éo cooperative in Québec, Canada, represents a similar experiment on a much larger scale—the cooperative has three ownership categories, for customers, producers, and workers respectively.⁴⁶ Ohio Solar (United States) is a worker-owned cooperative that installs solar panels but also administers the supply of electricity from these installations. Its business model focuses on using “anchor institutions”—non-profit organizations that play important roles in communities, such as hospitals, schools and universities—to build a solid, reliable base of mutually beneficial relationships.⁴⁷

Worker Cooperatives in Associated Industries

While workers’ cooperatives are fairly thin on the ground in electricity generation and distribution, they are more common in associated sectors. There are quite a few solar installation cooperatives, including Namaste Solar, PV Squared, Sol Power Cooperative, or the Bristol Area Solar Installers Co-operative (BASIC) and its U.S. equivalent, Amicus. There are several worker-oriented initiatives in the area of green building and energy efficiency, such as the Sustainergy Retrofitting Co-op (part of the Cincinnati Union Cooperative Initiative, a joint project of Spain’s mega-cooperative Mondragón and the U.S. trade union United Steelworkers.) Finally, there are worker cooperatives in the renewables manufacturing sector, such as Earthworker Australia, a solar water heating manufacturing and installation cooperative backed by Australian union representatives. The project is designed to create green jobs in what is historically a coal-mining region. Mondragón is involved in manufacturing components for solar systems and may be looking to expand their engagement with the renewables industry. The EBO Group in Ohio (United States) also produces components and technology.

Equity and Liberalization

Worker and/or union involvement in decision-making is, however, by no means assured in other kinds of cooperatives—even when they appear to be otherwise progressive and

relatively democratic. And while renewable energy cooperatives often involve decentralization of energy generation, they can also benefit from and even encourage energy *deregulation* processes, which put communities and workers at risk.

Climate and environmental advocates sometimes champion deregulation, and some renewable energy initiatives are framed as “anti-monopoly” campaigns targeting big utilities that—purportedly—need to be exposed to competition from community-driven organizations.⁴⁸ Discourses of monopoly-busting may appear to advance the democratic control of energy, but they can also serve the interests of start-up entrepreneurs with few—if any—sympathies for unions or workers’ organizations. Where big utilities are publicly owned, the expansion of cooperative energy can appear as a form of privatization through the back door. And public sector unions understandably find it difficult to support initiatives that are positioned as attacks on the livelihoods of their members. Unions such as the Canadian Union of Public Employees (CUPE) and the Québec Federation of Labour (QFL) prefer to support government ownership of energy on the grounds that energy providers are made accountable to the electorate as a whole, rather than only the members of a cooperative.

Community-run renewables cooperatives can and do find niches in the wake of deregulation. As Pier Angelo Mori notes, “the liberalization of some public services in Europe has stimulated the emergence of new cooperative providers.”⁴⁹ According to Nepomuceno Malaluan, environmentalists in South Korea and Thailand saw “unbundling” as “emasculat[ing] an environmentally destructive monopoly by allowing entry of decentralized non-renewable systems.”⁵⁰

This alignment between forces is neither universal nor automatic. A significant segment of the climate movement recognizes the threat privatization poses to the ability of governments to expand renewables and shut down fossil fuel production. Groups like Fuel Poverty Action in the UK and organizations in the Durban Climate Justice network have continuously and vocally opposed privatized, for-profit energy systems.

However, in contexts where privatization of public services and support for the fossil fuel industry appear hegemonic, communities working for renewable energy may see few choices beyond initiating cooperatives. The politically heterogeneous nature of cooperatives and their ability to find space to survive within a liberalized marketplace may partly explain how cooperatives are able to gain traction where other models, such as municipalization, do not.

But while liberalization of the energy market may initially offer a growth opportunity for cooperatives, community-owned companies in a capitalist marketplace are vulnerable to the expansionist logic of for-profit firms. As we see in the cases of China and Greece—and more broadly internationally—renewable energy companies are currently going through a period of consolidation, where large corporate players such as Shell are squeezing out smaller operations.⁵¹ Where deregulation and privatization of electricity are coupled, we often see not the proliferation of small community actors, but a market in the hands of a few powerful companies, such as the UK’s “big six.” We should be careful not to simplify this story too much, however. The International Labour Office’s Cooperatives Unit argues that the liberalization of the energy market “opened up opportunities for grassroots initiatives in the energy sector and led to the partial remunicipalization of the energy market.”⁵² In other words, in these authors’ view, liberalization was coterminous with opening up new possibilities for remunicipalization. This is a complex and counterintuitive historical argument, but one worth considering.

Even if it were not associated with the expansion of the private sector, completely decentralized and disaggregated energy provision make system-wide redistribution much harder. If decision-making and planning is coordinated with equity in mind, discrepancies between low and high-income communities can be evened out through measures like progressive energy

rates and needs-based infrastructure spending. It is possible to imagine a large network of disaggregated energy systems managed by not-for-profit, community-controlled, cooperative entities. But if these entities operate without any central coordination or redistribution, they will certainly reflect and probably amplify inequality between distinct communities.⁵³

This issue of equity is often raised by utilities that are making it difficult for their customers to install “behind the meter” systems—that is, solar panels on their roofs or windmills on their property. Behind the meter systems, cooperative or otherwise, may threaten big utilities by hollowing out the base of utilities’ “best” customers,⁵⁴ by which they seem to mean middle to upper-class customers who pay their bills on time and consume higher-than-average volumes of electricity. Utilities claim that the proliferation of behind the meter systems threatens their ability to pay for grid maintenance. When consumers mostly use energy from a renewable source that they own, they no longer pay the utility for the energy they previously got from the grid. Yet they often continue to require a connection to the grid in order to ensure a reliable supply of electricity on days when it is not sunny or windy. This leads to a perception that customers with renewable sources behind the meter are not “paying their fair share,”⁵⁵ meaning that even less money is available for big utilities to invest in grid upgrades and other capital investments that the shift to renewables requires. There is, of course, another major consequence. In utilities with an organized workforce, a slump in sales or profits is likely to reduce the number of good jobs available to union members.

Renewable energy advocates, however, argue that at least one of these claims is inaccurate. Tom Beach, a consultant with Crossborder Energy, claims that utilities’ claims underestimate the benefits of “behind the meter” generation. He argues that cost projections should account for

*the reduced need for new power plants and transmission lines, smaller energy losses through transmission (because much of the power is used where it’s generated); less vulnerability to increases in fossil fuel prices; and finally allowing utilities to meet government-mandated renewable energy targets without investing in big solar or wind farms.*⁵⁶

The shift from centralized utilities to decentralized, cooperatively owned energy may, for unions, represent another problematic facet of liberalization: namely, a significant amount of volunteer labor, particularly in the organizations’ early stages. In the most optimistic light, this could be read as a communizing tendency, following a trajectory toward the abolition of wage labor. In a more common interpretation, this becomes yet another instance where unpaid labor is mobilized through a discourse of volunteerism, undermining the principle of compensating people for their work.

Unions and workers are familiar with the concept of “job substitution,” where staff can be replaced with unpaid or lowly paid volunteers. This is particularly visible in public services like healthcare and has often become government policy in the era of austerity politics, as in Britain, with the current conservative government’s emphasis on “the Big Society.” It is relatively common for employers to cast green initiatives as a way to increase worker loyalty, retention, and identification with the company’s “mission.” While we must be careful not to draw dramatic conclusions from one study, researchers did in one survey find that workers whose employers engage in “green” activities are more likely to work unpaid overtime. Or, as one conservation blog enthuses, they are “willing to ‘donate’ labor to companies whose values align with their own by taking lower salaries and showing up at work more often.”⁵⁷ Unions can play an important role in ensuring this does not happen: in the UK, the Trades Union Congress (TUC) and Volunteering England have set up a charter to address these

concerns in the context of public spending cuts.⁵⁸ If community-owned energy is not to become a permanent site for self-exploitation under green austerity, with chronic public underfunding mitigated by volunteer labor, then unions and workers must be involved in its governance from the outset.

Structure, Financing, and Mission

Many renewables cooperatives include some kind of social “mission” in the way they present themselves to the public, even if this is stated only in terms of the need for a clean environment. But it can be difficult to distinguish between those with social justice as their primary organizational concern and those that adopt a rhetoric of social good as window dressing. As noted above, an organization’s stated “mission” is usually only one of many complicated political forces at play in the establishment of a cooperative. An organization may be founded to “promote community energy,” but it almost certainly has other political goals and implications, such as consolidating the base of a particular

party, or—in the case of cooperatives supported by USAID—a particular foreign policy. And as we have seen in the case of U.S. rural electric cooperatives, the publicly stated, founding mission of an organization cannot always predict its political character over the longer term. For this reason it is important for unions and workers’ organizations to assess the distinctions between the composition and governance structures of different cooperatives.

In the final analysis, *why* a cooperative is set up is significant: but *how* it is set up may tell us more about its structural limitations and possibilities. Financing and organizational typology can both shape and constrain the mission of cooperatives, for instance by making them beholden to creditors or donors. In the case of transnational aid, these constraints can be particularly acute, as we know from the long history of “tied aid” and loan “conditionality.” Knowing more about a cooperative’s institutional form may help us assess whether it is likely to become just another capitalist firm, or to stay accountable to a wider community and/or its workers.

Type of cooperative	Example
<p>Producer/investor</p> <p>These cooperatives are typically made up of members who finance or own energy generators, such as farmers with wind turbines on their land or shareholders in a large solar farm. They sell electricity to customers who are not necessarily members of the cooperative.</p>	<p>WindShare, Canada</p> <p>A for-profit cooperative best known for putting a wind turbine on the Toronto skyline in partnership with the government-owned utility, Toronto Hydro. Its members are farmers with wind turbines on their land and other shareholders. Each member has a vote in major decisions, regardless of the size of their investment.</p>
<p>Consumer/producer</p> <p>These cooperatives are made up of members who own energy generators and those who consume the electricity from them, for instance through a network of rooftop solar systems. These are common throughout the world, in countries including Nepal, Bangladesh, Bolivia, Denmark, Germany, and Spain.</p>	<p>South Lalitpur Electrification Campaign Committee, Nepal</p> <p>One of many cooperatives the Nepalese government has supported through a centralized agency (the Nepal Electricity Authority). According to Annabel Yadoo and Heather Cruickshank, “while the NEA provides up to 80% of the capital investment, communities must contribute at least 20% of the total cost of grid extension via labor, household donations, bank loans, or loans and grants from the local village and district development committees.”⁵⁹</p>

<p>Purchasing</p> <p>These are cooperatives where members get together to negotiate a cheaper price from an energy supplier based on their collective purchasing power.</p>	<p>Community Purchasing Alliance (CPA), U.S.</p> <p>A cooperative of more than 100 non-profit entities (including schools and religious organizations) that negotiates for purchases at fixed group rates, including options for 100% renewable energy.</p>
<p>Worker/producer</p> <p>Presently an uncommon cooperative form, where energy production is owned by a group of workers.</p>	<p>Volkswagen Emden Plant, Germany</p> <p>(See below for details)</p>
<p>Hybrid</p> <p>These are cooperatives that bring together different combinations of the actors noted above (producers, consumers, workers, and investors). They have different categories for different kinds of membership.</p>	<p>Retenergie, Italy</p> <p>A cooperative that has two kinds of membership: “consumption members” pay a deposit (of at least 50 € euros) and can then buy electricity from the collective. Investment members pay 500 € for ten shares. This money is used to build new installations, and investment members receive a share of the profits, in addition to receiving electricity from the collective.⁶⁰</p>

Type of financing	Example
<i>Donors</i>	
Grants	<p>Punta Alta, Argentina</p> <p>Managed by the cooperative CEPA (La Cooperativa Eléctrica de Punta Alta), this wind farm was partially financed by grants from the German government.</p>
Crowdfunding	<p>Kaštela Energy Cooperative, Croatia</p> <p>The United Nations Development Programme organized this project to partially finance the installation of solar panels on a school through crowdfunding.⁶¹</p>
<i>Government subsidies</i>	
Feed-in tariffs and direct subsidies	<p>Ottawa Renewable Energy Co-op, Canada</p> <p>The growth in energy cooperatives such as this one in the Ontario province has been attributed to the local introduction of a feed-in tariff.⁶²</p>
Tax breaks	<p>Middelgrunden, Denmark</p> <p>In Denmark, wind cooperatives such as Middelgrunden “can take advantage of tax incentives, which allow tax-free income from renewable energy systems up to a certain limit. Revenues above the set limit are taxed a lower rate than normal income tax.”⁶³</p>
Grants	<p>Hepburn Wind, Australia</p> <p>When Australia’s first community-owned wind farm launched, over 1,100 members of the co-operative had invested 7.5 million Australian dollars. This was supported by a \$975,000 grant from the local state government.⁶⁴</p>

<p>Renewable portfolio standards</p> <p>These regulations require power companies to provide a certain amount of the total energy they put into the grid to be generated from renewable sources. These are in force in 63 countries, though not all at the national level.</p>	<p>Clean Energy Collective, USA</p> <p>In 2013, the Yampa Valley Electric Association (YVEA, a rural electricity cooperative) inked a deal to buy 500 kW of renewable energy from a cooperatively owned solar farm in Craig, Colorado. This purchase agreement will count towards YVEA's obligations under Colorado's renewable portfolio standards.⁶⁵</p>
<p>Concessionary loans</p>	<p>Rural Electrification Board, Bangladesh</p> <p>In addition to direct subsidies in the early stages of cooperative development, Bangladesh's Rural Electrification Board, a national authority, offers "low-interest loans with long repayment periods."⁶⁶</p>
<p><i>Consumer financing</i></p>	
<p>On-bill</p> <p>The cost of developing renewable generation—for example, rooftop solar—is spread out over time and included on a customer's electricity bill.</p>	<p>Hawaii, U.S.</p> <p>While we are not aware of any cooperative currently employing it, Hawaii's public utility commission has just introduced a mechanism for renewable energy projects to be paid for through regular consumer bills.⁶⁷</p>
<p><i>Debt</i></p>	
<p>Loans</p>	<p>Kiegoi tea growers' savings and credit cooperative, Kenya</p> <p>This cooperative has developed loan programs with their members for buying and installing solar systems.⁶⁸</p>
<p>Shares</p>	<p>Baywind, United Kingdom</p> <p>This cooperative raises capital from its members through a share structure, in addition to external grants.⁶⁹</p>
<p>Revolving loans</p>	<p>Community Solar Garden Inclusion Fund, U.S.</p> <p>This Colorado project involves soliciting earnings from wealthier members of the cooperative. Low-income participants then pay back loans made over a seven to ten year period from the savings on their electric bills and eventually become owners of shares in a solar garden.⁷⁰</p>

We have not encountered examples of the sale of bonds or prepaid meters in financing renewable energy cooperatives, but they are

common mechanisms for electricity financing and could well appear in the cooperative sector.

Financing Renewable Energy Cooperatives

A major challenge facing energy cooperatives is the high capital outlay required to set up the infrastructure. Renewable energy-based rural cooperative models across the world require high levels of initial seed capital.⁷¹

International Labour Organization, 2014

Many proposals for funding the transition to renewables rely on public tax revenues. Nonetheless, the placement of *private* capital remains important. Campaigns are multiplying across the world for institutions to divest from the fossil fuel industry.⁷² But environmental movements are also looking to proactively build renewables by directing private capital flows toward wind and solar. Can we imagine scenarios not only in which more “green” investments contain union labor procurement clauses but also where union pension money contributes capital to thousands of community and cooperative energy projects?

This is not an entirely speculative question; as we see below with the Middelgrunden project in Copenhagen, workers’ organizations are already financing community renewable energy. In Australia, the Collgar wind farm, which, by the company’s accounting, generates enough energy to power 125,000 homes, was jointly developed by an employee superannuation fund, which still owns 40% of the project. The California state pension fund CalPERS has part of its portfolio dedicated toward renewable energy.⁷³ Although many of these investments could not be properly classified as community energy—and they are certainly not cooperatives—they illustrate the potential for union pension fund investment in large-scale renewables. According to sources in the industry, pension funds have been stepping in to fill a chronic shortfall of long-term bank lending to community renewable projects in the UK, with risk and return profiles lining up to each party’s mutual benefit. The National Union of Metal Workers of South Africa (NUMSA) has argued that workers’ pension funds should be mobilized to finance community-owned and operated renewable energy projects. In 2013, following NUMSA’s political lead, the Metal Industries Benefit Funds Administrators (MIBFA) decided to commit up to one billion Rand towards investing in the renewable energy sector.⁷⁴

Of course, this is not a straightforward proposition. As many campaigners have discovered, the governance of pension funds is tightly controlled under the banner of fiduciary responsibility.⁷⁵ In the United States, many employee stock ownership plans are funded by employee pension plans, a process which does not have unequivocal support in the labor movement of that country.⁷⁶ Workers’ organizations are by no means united in their view of superannuation or pension funds. For some, it remains a problematic compromise with a neoliberal agenda, and for others it appears as a strategic point of entry to the capital markets that shape so many industries. It is crucial that pension-funded projects are developed in line with worker needs and concerns. Tensions arising from questions such as the split between returns for worker-investors, wages for workers, revenue for taxation, and low prices for customers—who might also be owners!—will continue under this model, with no easy or obvious solutions. There is a real risk that pension fund money could go into vehicles such as “public-private partnerships” in renewable infrastructure, essentially providing a union alibi for the privatization of public services. Nonetheless, particularly in the context of sluggish government incentives for renewable energy development, the option of channeling workers’ money into cooperative development deserves consideration.

Unions and Renewable Energy Cooperatives

What does the range of possibilities for cooperatives currently include? Is it possible to build cooperative renewables in a way that grows employment and workers' political power? The following examples are put forward not as models but rather as illustrations of the variety of relationships between workers' organizations and cooperative community energy.

Volkswagen Staff Association for Regenerative Energy, Germany

The first energy-producing cooperative we will highlight is in what might appear an unlikely place—on the roof of a car factory: a Volkswagen plant in Emden, Germany. The project was initiated by the works council at the factory and established in 2008. It received support from company leadership, and while it had to overcome middle management skepticism, the plant manager is now a member of the cooperative along with the personnel and logistics managers. The cooperative has leased the roof space from Volkswagen at a nominal sum (one euro per year) for 25 years—and if the plant is sold, these obligations will transfer over to the new owner. The solar panels generate power that is sold back into the general grid at a fixed price subsidized by the German government. This occurs under national legislation designed to encourage renewable energy.

About 225 employees and their family members are participants in the project, with investments at minimum 250 euros and at maximum 10,000 euros. Most members have holdings worth around 1,000 or 2,000 euros, which they can retain even if they stop working at the company. At peak capacity, the panels are said to produce enough energy to power 80 to 100 typical four-person households for a year. The cooperative has generated two percent returns on investment per year and is planning

to expand. The feasibility of a windmill on the factory site is currently being assessed.

The German format of the factory works council (in which workers and management participate together) creates unique opportunities for this kind of collaboration. Union participation varies. German union IG Metall's support has been most prominent at the Emden plant, where the cooperative is "strictly" separated from the works council—though the chairman of the council acts as Supervisory Board Chairman of the cooperative. But other comparable projects exist around the country at workplaces including a Unilever dispatch hall, the Hümmling livestock group, and the University of Bremen.⁷⁷

Hvide Sande, Denmark

The growth of wind power in Denmark is often referred to as a model for the rest of the world. A large proportion of this wind development, particularly in its early stages, has occurred through cooperative ownership. One often elevated as a model for emulation is the high profile Middelgrundren project with its twenty windmills off the coast of Copenhagen jointly owned by many investors (including trade unions) and the municipal utility in a cooperative structure.

However, as we have noted following Preben Maegaard of the Danish Folkecenter, the benefits of profit-oriented cooperatives accrue primarily to their members. Though Danish law requires twenty percent of any wind project to be owned by members of the community where it is sited,⁷⁸ this can still leave a very large proportion of those affected by the project—either as neighbors or customers—under-represented in decision making.

The Hvide Sande project, by contrast, presents a different structure for collective ownership that advocates want to be more widely repli-

cated. It is a small-scale initiative, where only three windmills are owned by a non-profit foundation dedicated to local economic development. Various organizations, including the local tourism board, local utilities, the local trade union confederation, and the local branch of the business association initiated the formation of the foundation; but none of them *benefit* from the trust fund directly, as they would if they were shareholders. After strong local opposition to a previous proposal to develop a privately owned wind project, the non-profit foundation found solid community support.

San Jose Employee Solar Group, United States

In San Jose, California, the credit union for municipal employees negotiated a bulk solar purchase for a group of 130 city employees. The credit union allows past and present municipal workers to get solar equipment and installations at a cheaper rate than they would pay as individual customers.⁷⁹

The model of collectively negotiating discounts is a common one, particularly when it comes to rooftop solar. Though these purchases are commonly grouped geographically, they have also been arranged through workplaces. These are often done as part of companies' public relations efforts or "corporate social responsibility" programs. In October 2014, 3M, Cisco, Kimberly-Clark, and the National Geographic Society partnered with the World Wildlife Fund and project manager Geostellar. The project "gives employees of these companies, their friends, families, and communities" discounted solar equipment and installation through a bulk purchase. Bank of America has initiated a similar program with the nonprofit GroupEnergy, as have a number of Silicon Valley companies.

The San Jose program for municipal workers, though its size is undeniably modest, offers insight into what a cooperative initiative

within the public sector can look like. It also demonstrates another way workers can be engaged collectively *as workers* in the decentralized production of renewable energy. While bulk-purchasing programs cannot be equated to long-term generation and distribution cooperatives—as they generally involve a one-off collective financial engagement, rather than an ongoing one—they indicate the potential for organizing concrete action for renewable energy through workplace relationships. The bulk of these programs may currently be in the service of corporate image building, but they need not be. As with any large organization, unions could easily play the role of connecting their membership to bulk joint purchases, conceivably as a first step to more ongoing collective work. In fact, labor involvement in the Community Purchasing Alliance (see above) indicates that some already are.⁸⁰

Toward More Democratic Energy Systems?

In a context where government inaction on climate is entrenched—as in many places in the U.S.—and the constituency advocating for government provision of public services is weak, cooperatives may offer a vehicle for advancing the shift from fossil fuels to renewables. Consider this assessment from the community choice movement in Oakland, made as part of a proposal to establish a buyers cooperative:

It would be a very difficult, uphill battle to establish a municipal utility in Oakland. In order to do so, the existing, aging electricity distribution network would have to be purchased from PG&E or a new one built from scratch. Either option would be very costly.⁸¹

Where government support can be counted on, it may be geared towards cooperatives—as it has been in Germany—making it easier for them to scale up quickly.

There may be other reasons that cooperatives emerge as a kind of social ownership preferable to direct government control. Where state ownership involves oligarchic, oppressive, opaque, or ineffectual institutions, including constraints and attacks on worker organizing, community-based cooperatives might offer the best path to more participatory control of renewable energy production. Al Weinrub, citing David Hall, argues that “the corporate control of the state” can easily undermine the democratic claims of public ownership. Even in places where trust in central government efficacy and transparency is high, tensions still remain between claims of the advantages of local control and those of centralized governance.⁸² From some perspectives, of course, cooperatives are appealing precisely because they offer autonomy from government and must be defended against the threat of state collaboration or cooptation.

Perhaps the most noteworthy critique of cooperatives from the left is that cooperatives tend to retain benefits within their own memberships. And the costs of entering into the renewable space can be prohibitive. Upfront capital is often required to attain membership, strongly disadvantaging people without access to savings or easy credit. Even the most internally egalitarian and collectivist energy cooperatives, as we have noted, do not always play a clear role in the larger landscape of energy and equity politics.

Aside from the complicated relationship to both marketization and inequality that cooperatives can have, there may be more pragmatic reasons that cooperatives are not the preferred choice of energy provision within any given community. Cooperatives take a lot of work, and people may not wish to spend their time or their expertise on the management of their electricity supply. The authors Steven M. Hoffman and Angela High-Pippert argue that cooperative decentralized energy is a way to

reconstitute a fractured public sphere in the United States. But they cite heavily John R. Hibbing and Elizabeth Theiss-Morse’s work, putting forward the thesis that many people do not actually *want* more engagement with energy governance and that “the assumption that most people want to and are fully qualified to make fundamental energy choices through a democratic political process is hardly indisputable.”⁸³

We also know that big cooperatives can come to resemble corporate utilities, with their own oligarchic, opaque, and inflexible features—particularly in terms of labor relations. In settings where increasing government involvement in service provision is part of a common political vocabulary, as in the case of Venezuela, Bolivia, Argentina, and Ecuador, municipalization might be a more viable way to restructure the electricity system—though we must also bear in mind that none of these governments have aggressively pursued renewable energy expansion, and all are heavily invested in fossil fuel extraction. In these circumstances, any worker-oriented “energy democracy” initiatives will have to weigh the costs and benefits of putting forward alternatives—such as municipalization or reform of existing private utilities—on one hand and supporting struggles to re-democratize cooperatives and organize their workforces on the other. In the latter case, the full range of possibilities for union engagement with cooperatives must be explored.

To conclude, we must consider whether the distinct forms of social ownership—decentralized community cooperatives at one end of the spectrum, full state ownership at the other—are, in fact, mutually exclusive. Certainly, in some circumstances, a strategic choice must be made. In the struggle to shift Berlin’s energy system from fossil fuels to renewables, competing proposals were put forward, with one group arguing for a cooperative with mass membership to buy out the grid and another

group arguing for municipalization.⁸⁴ Mori's outline of the historical trajectory of electricity utilities notes that after a growth spurt in the 19th century, their proliferation was "later hindered by the municipalization of local public services."⁸⁵ Certainly interaction with the state is not the only way that cooperatives can "scale up." The cooperative community has several methods in their arsenal, such as forming larger conglomerates of cooperatives (DC Sun, in Washington, is a good example of such an endeavor). Other possibilities include collectivizing research, accessing technical support through cooperative peak bodies, forming cross-sector coalitions, concentrating funding pools, and growing the number of cooperatives through development initiatives such as the Wales Co-operative Centre (originally founded by the Wales Trade Union Council).

But in other cases, such as that of Middelgrunden, there is a collaborative relationship between these different forms of collective ownership. In South Tyrol, Italy, municipalities are sometimes members of electric cooperatives.⁸⁶ Consider this description of a project in Colorado Springs, United States: "Residents [...] may purchase shares in the city's solar garden and then receive a credit on their municipal utility bills based on the energy generated. When shareholders move, they can sell their shares to other residents in the city."⁸⁷ Many cooperatives receive government subsidies and have partnerships with municipalities and provinces, such as Ecopower in Belgium and Brixton Energy in the UK, where a community cooperative has partnered with a local council to put solar on top of public housing, while also being financed through federal tax breaks and subsidies. Hilary Wainwright argues that these kinds of "public-public partnerships" offer a powerful base for coalition building for more democratic economies.⁸⁸ We also see examples where collectively owned renewables are "nested" within utilities' operations, allowing

utilities to count them toward renewable energy production requirements. This is the model with which the Colorado-based Clean Energy Collective operates. These blurred boundaries and hybrid forms should be taken into account as we consider the possibility of what Daniel Chavez has described as "centralized planning and decentralized operation."⁸⁹

We conclude by suggesting some key questions for unions to consider as they assess what engagement they and their members should have with cooperative renewable energy:

- ⇒ Do the cooperatives have a social mission, such as providing affordable energy access for low-income earners? Or are they centrally concerned with generating financial returns for member-owners? What is their relationship—if any—to coordinated redistribution?
- ⇒ Are the cooperatives committed to broader attempts to expand renewables at speed and scale, or is their regulatory engagement limited to a narrow range of issues that affect their immediate operations and profit margins?
- ⇒ Are cooperatives growing in the context of a broader push to weaken existing public control of the energy system, for instance the undermining of publically owned utilities? Or are they working to advance collective control of energy where previously there was very little?
- ⇒ What is the alignment of political forces in the given context? Where are potential allies situated, and what is the extent of their leverage? Are cooperatives the most viable way to expand social ownership of renewable energy, in relation to other options such as municipalization?
- ⇒ What kind of politics is possible within the financing and structure of the cooperatives? Is there space for worker voices in decision-making, or are anti-worker structures likely to be "locked in"?

- ⇒ Are there opportunities for stable returns on pension fund investments?
- ⇒ Are they cooperating, competing, or working in parallel with other forms of social ownership, such as municipal utilities?

Given the complex picture of different contexts, missions, structures, and finance sources among renewable cooperatives, it is neither possible nor advisable to formulate a single position that unions should take in relation to them. On

the basis of present experience, there is no one route to democratically governed renewable energy; no one method that unions should support that can guarantee positive outcomes for workers or communities. But given the progressive aspects of some cooperatives, a flexible approach with room to adapt to the specificity of each political context would be judicious. The strategic engagement of workers' organizations with renewable cooperatives can—and should—differ according to circumstance.

3. Remunicipalization and Public Renewable Power

Lead author: Lara Skinner

Community-led movements to gain local, democratic control of energy and increase the share supplied by renewables are growing. Many of these efforts have focused on developing worker or consumer cooperatives or relying on private companies and investor-owned utilities (IOUs). Much less attention has been paid to the role “public power” (state-owned and operated energy) and public utilities can play in meeting social needs and expanding renewables.

In fact, as public utilities have become corporatized, corrupt, or bureaucratic, burgeoning movements for renewables and local control often view public utilities as an obstacle to needed change in the energy sector. But there are limitations to private, market-based, and even cooperative models. One major limitation lies in the fact that they are not truly publicly and democratically controlled. Even in consumer and worker cooperatives, the practice of economic democracy is typically limited to those who are members of the cooperative, excluding the broader public and its interests. Another major limitation is that the pace and scale of their development of renewable ener-

gy is not sufficient to address the climate crisis. Publicly owned and operated energy, on the other hand, may be the most equitable, efficient, and effective way to address the climate crisis, protect workers, strengthen unions, and create an energy system responsive to community needs.

Historically, unions have been an important force both for public power and against privatization in the energy sector. Unions in Los Angeles, among them the International Brotherhood of Electrical Workers (IBEW), struggled for a decade in the early 1900s to gain public control of the city's energy and water systems, even advocating for energy to be viewed as a public service, offered for free or at very low costs.⁹⁰ Still in operation, Los Angeles has one of the oldest publicly owned power systems with union representation in the world. In 2014, the Utility Workers Union of America (UWUA) successfully stopped the privatization of the Philadelphia Gas Works in light of serious concerns about rates, reliability, system improvements and upgrades, and worker protections under private ownership.⁹¹ In the UK, the union GMB is calling for renationalization of the energy system. Its members—workers

in the energy sector—are worried that the private operator has let so many power plants fall into disrepair that diesel generators will be necessary to generate electricity during cold winter spells.⁹²

However, more recently, there has been significant conflict between energy unions, communities, and environmentalists over the expansion of renewable energy because attempts to switch to renewables often threaten union jobs in coal, gas, and nuclear generation. Given unions' significant representation in existing energy utilities and the ability to better protect workers in most publicly owned and operated systems, the trade union movement has a much greater role to play in developing and advocating for "public renewable power."

It is clear that creating energy systems that are both more ecologically sustainable and equitable depends largely on the ability to shift power from the fossil fuel industry to workers and communities. Energy democracy is about workers' and communities' ability to decide who owns and operates our energy systems, how energy is produced, and for what purpose.

This section explores the important role that utilities under public ownership and control, either through remunicipalization or by reform of existing public utilities, have in realizing energy democracy. In today's energy system, energy democracy means to:

- ⇒ Rapidly scale up renewable energy to control and then quickly and dramatically reduce emissions and harmful pollution;
- ⇒ Protect workers' rights and generate decent and stable jobs;
- ⇒ Create an energy system based on ecologically sustainable methods of energy extraction, transport, and use;
- ⇒ Be responsive to needs of communities
- ⇒ Address energy poverty;
- ⇒ Aggressively promote energy conservation.

In order for such a vision to be realized, the labor movement, in collaboration with allies in other social movements, will need to lead.

A Path to Energy Democracy?

One positive trend toward gaining more democratic, public ownership of energy in recent years has been the increase in municipalization and remunicipalization campaigns. These involve the creation of a municipally owned utility (MOU), either from scratch or by reversing previous privatizations.

In most instances, public utilities were established to service public needs for energy, water, and sanitation, making them—in principle—well placed to transfer power to communities. That said, it is clear that the current dominant approach to energy policy, involving the liberalization of energy markets, privatization, and corporatization, has diminished the capacity of public utilities to meet social and environmental needs.

Generally, the neoliberal approach to energy has included higher energy prices, efforts to downsize and deunionize the utility workforce, and less reliable and poorer quality electricity service.⁹³ Many public utilities that have been corporatized through the liberalization of energy markets have major problems including underinvestment, corruption, and lack of responsiveness.⁹⁴ As a result of these issues and the growing visibility of the climate crisis, more pressure is being put on utilities to both invest significantly in renewable energy and address other community needs.

Power to the People

During the 1980s and 1990s, a wave of privatization spread through North America and Europe that impacted many public services,

including electricity, telecommunication, water, transportation, and sanitation. Over the last several years, however, efforts to roll back these policies have gathered considerable momentum, particularly in the cases of water and sanitation. Momentum in the energy sector is now growing.⁹⁵ We are seeing what David McDonald calls the emergence of a “new counter-narrative to the neoliberal ideology of market-based service delivery solutions” that highlights non-private, collective, public, and social forms of energy ownership.⁹⁶

Remunicipalization efforts often stem from a constellation of factors, including communities’ desire for “local control, distributional justice, environmental sustainability and justice, and greater participation in the decision-making and operations of the energy system.”⁹⁷ But the recent rise in municipalization efforts seems to be linked to a few distinct factors, discussed below.

First, many of the concession agreements between private, investor-owned utilities (IOUs) and cities, signed 20 or 30 years ago, are expiring.⁹⁸ This has opened up legal and political space for communities to reconsider whether to renew their contracts with private companies or to take energy utilities back under public control. The failures of privatization are more widely recognized now, and many communities are confident that they can run utilities better than private companies.⁹⁹

Nearly every municipality operates against a different legal and regulatory backdrop that impacts what cities are able to do to reclaim their utilities.¹⁰⁰ Some, like Boulder, Colorado, in the United States have a franchise renewal model that enables the city to allow the private companies’ franchise agreement to expire without renewal.¹⁰¹ In other cases, even after privatization, the city still owns a certain percentage of the grid and can end the contract following a referendum. This occurred in Ham-

burg, Germany, in 2013 when citizens voted through a referendum to terminate the city’s contract with two private companies. The vote mandated the city to buy back the electricity grid.¹⁰² It is also possible, in some circumstances, for governments to seize companies that are no longer considered to be serving the public good. In California, the City of Corona exercised eminent domain to “condemn,” or reclaim, the IOU, Southern California Edison, to public control in order to reduce rates and provide more reliable service.¹⁰³ If sub-national and national governments get serious about tackling the climate crisis, the use of condemnation and eminent domain should be explored further. This is one way of ensuring that cost does not prohibit municipalities from returning private utilities to public control.

Second, growing concern over the climate crisis, air pollution, and the need to quickly and dramatically expand renewables have also spurred communities to launch municipalization campaigns. Both private and public utilities still rely heavily on fossil fuels for electricity generation despite numerous studies that have shown it is technically possible to meet 80 to 100% of the world’s energy needs with renewables in the following decades.¹⁰⁴ In short, citizens and communities have become frustrated with the failure of utilities to deploy renewable energy at the necessary scale and pace. This refusal of IOUs to shift to renewables has made the fossil fuel industry’s tremendous power over the energy system more apparent to communities. The priority for fossil fuel companies is maintaining revenues in the face of “disruptive competition”—wind and solar producers—and sustaining or growing profits. Their power over the sector makes it very difficult to protect workers, communities, or the climate. In short, electrical utilities generally decide what makes up the energy mix a community uses. The only way to change the energy mix and address other community concerns is to gain public, democratic control of these decisions.

Third, the trend toward collective ownership, including remunicipalization, is directly tied to the growing power of social forces for energy democracy, including indigenous movements, climate and environmental justice activism, some segments of the labor movement, and other communities that have “seen the effects of a profit-driven service delivery model on workers, low-income households and the environment.”¹⁰⁵ There is growing public recognition that remunicipalization is a “credible, realistic, and attractive option for citizens and policy makers dissatisfied with privatization.”¹⁰⁶

Possible Limits to Remunicipalization

There are, however, some reasons to be cautious about remunicipalization as a means of achieving more democratic control of renewable energy. Unfortunately, any assessment of remunicipalization is hampered by the lack of comprehensive data on and analysis of such efforts in the energy sector. Unlike the water sector, where a substantial movement to develop alternatives to privatization has emerged, most efforts to municipalize energy utilities are only in their early stages. Citizens have launched campaigns to remunicipalize energy utilities, and cities have made the decision to municipalize their energy systems, but not many have completed the process yet. At this stage it is difficult to draw any reliable conclusions about how utilities operate after remunicipalization or their ability to deliver “energy democracy.” As these stories unfold, the Public Services International Research Unit has done extensive research and policy work to support unions’ opposition to privatization and the development of alternatives, such as public-public partnerships and remunicipalization.

In addition, remunicipalization efforts in the energy sector are mostly limited to towns, cities, or counties taking control of the energy *distribution* system, and only in some cases

include control of electricity *generation*. This means that even if remunicipalization efforts are successful, decisions about energy generation—for instance, whether to invest in fossil fuels or renewables—may remain in private hands.

Another reason to be cautious regarding the universal applicability of energy remunicipalization is that examples to date are not geographically diverse. Because energy privatization in the 1990s occurred most extensively in North America and Europe, the expiration of concession agreements with private companies are now providing opportunities to reverse these trends in the Global North. In many parts of the world, communities are still facing pressure to privatize their energy systems. Rather than a move toward public control of key services, privatization is being advanced as part of a global austerity agenda. And even if the World Bank and International Monetary Fund have moved away from using the most aggressive tactics of structural adjustment to enforce the direct privatization of public services, they still advocate strongly for public-private partnerships that undermine public control of key sectors.

Finally, the last limit to remunicipalization campaigns relates to free trade agreements. The energy remunicipalization movement could be crushed by the myriad free trade agreements currently being negotiated. The Trade in Services Agreement (TISA) would limit and may even prohibit remunicipalization because it would prevent governments from creating or reestablishing public monopolies or similarly “uncompetitive” forms of service delivery.¹⁰⁷ The standstill clause would lock in current levels of services liberalization in each country, effectively banning any moves from market-based to state-based provision of public services. This clause would not in itself prohibit public monopolies; however, it would prohibit the creation of public monopolies in sec-

tors that are currently open to private sector competition.¹⁰⁸

In order to understand if remunicipalization is an important option or pathway for achieving energy democracy, the following questions need to be explored:

- ⇒ Can remunicipalization help communities gain public and democratic control of their energy future?
- ⇒ To what extent are remunicipalization efforts shifting the power landscape in the energy sector?
- ⇒ Is remunicipalization an effective way to massively scale up solar and wind energy? Address energy poverty? Expand good employment opportunities and union representation in the energy sector?
- ⇒ What are the limitations of realizing “energy democracy” through a municipalization approach?
- ⇒ To what extent can remunicipalization efforts be used to gain broader public, democratic control of the energy sector, particularly at the national level?

Efforts in the United States and Germany

The next section examines two recent cases of cities with strong citizen-led campaigns for energy remunicipalization—Boulder, in the United States, and Berlin, in Germany. Several other cities exploring remunicipalization are also touched on, highlighting the main opportunities and challenges these campaigns are facing.

“Renewables Yes!” Takes on Xcel Energy: Boulder, Colorado, United States

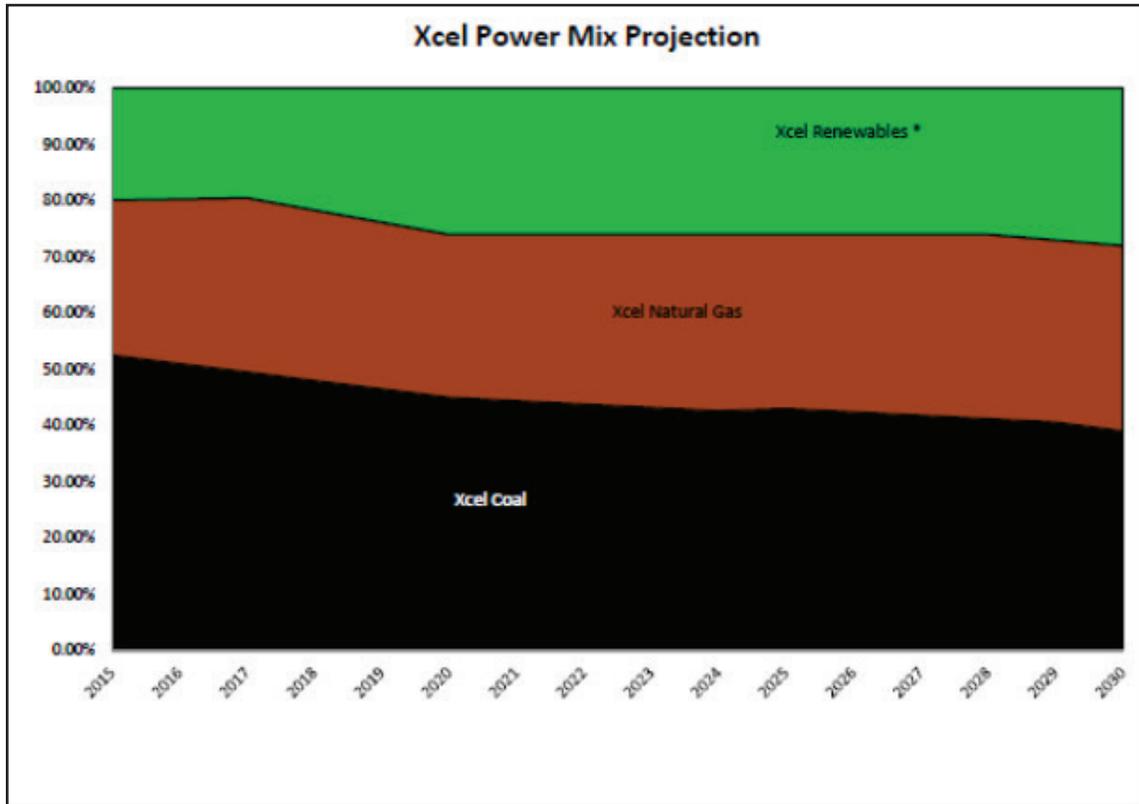
Boulder is a medium-sized city in the western United States where environmental concerns enjoy strong popular support. Largely driven by

frustration that the investor-owned utility, Xcel Energy, was delaying Boulder’s transition to renewables, a coalition of environmental organizations and citizens groups, Renewables Yes!, initiated a campaign to municipalize the utility.

Citizens’ efforts to reclaim the utility coincided with the 2010 expiration of Xcel’s franchise agreement with the City of Boulder. During the negotiations to renew the franchise, which started around 2005, the city government pushed Xcel to increase the share of energy it supplied from renewables. Xcel agreed to install a 25-acre solar array and shut down the Valmont coal plant that had begun operating in 1924.¹⁰⁹ However, Xcel also moved forward with plans to build a new coal-fired power plant, Comanche 3, and to retrofit another older coal-fired plant. The cost of building Comanche 3 and retrofitting 950 megawatts of coal generation was over \$1 billion, and it led to increased prices for Xcel’s customers. These actions also signaled to Boulder residents that Xcel was committed to using coal for many more decades.¹¹⁰

Boulder has a number of efforts underway to reduce its carbon emissions, including a carbon tax based on electricity use (rare for a U.S. city), a commitment to the Kyoto Protocol emissions reduction goals, and a statewide renewable energy standard.¹¹¹ In the process of developing climate goals, it became very clear to Boulder officials that the only way the city could significantly reduce its carbon emissions was by decarbonizing its electricity supply. About 60% of Boulder’s energy mix comes from coal-fired generation, and Xcel intended to continue generating electricity from coal until at least 2070.¹¹² But when the City of Boulder conducted its feasibility study for forming a MOU, it found that it could reduce its greenhouse gas emissions (GHGs) by 50%, by getting 54% of its energy from renewable sources within five years, with no negative impacts on rates or reliability.¹¹³

Figure 1: Projection of Xcel Energy Corporation’s Energy Mix, 2015-2030¹¹⁴



Boulder’s citizens became further frustrated with Xcel Energy when the company failed to successfully carry out an energy efficiency and smart grid plan. Xcel was supposed to install 1,845 smart grid devices that would make Boulder’s electricity system more energy efficient, at a cost of \$16 million. Instead, Xcel installed only 101 smart grid devices at a cost of \$44 million.¹¹⁵ Xcel attempted to recover some of these costs from Boulder customers but the Colorado Public Utility Commission intervened.¹¹⁶

Besides wishing to address climate concerns, Boulder citizens wanted more democratic control over their energy system in general, to ensure reliability and rate stability.¹¹⁷ Indeed, Boulder citizens had considered municipalizing their energy utility three times before the latest effort in 2013. In the 1960s, Boulder consid-

ered municipalizing Xcel because the company refused to install underground electricity lines that would make electricity service more reliable and resistant to storm damage.¹¹⁸

In 2013, the citizen and environmental coalition Renewables Yes! brought two referenda to voters, and both ballots were narrowly approved. One authorized the City of Boulder to conduct a legal, financial, and technical analysis of the feasibility of Boulder controlling its own utility. The other approved a one dollar per month per resident tax to establish Boulder’s MOU. Boulder hopes to establish its MOU by 2017.¹¹⁹

Boulder voters’ decision to establish its own utility is significant, given Xcel and other interest groups’ opposition to municipalization. Xcel spent millions of dollars trying to oppose

the municipalization referendum, and as some city officials note, its budget to continue to fight the terms of the municipalization is “effectively unlimited” compared to that of the City.¹²⁰ The total compensation package for Xcel CEO Richard Kelly in 2007 was \$8 million.¹²¹ Xcel is also a member of and contributor to the American Legislative Exchange Council (ALEC), a corporate-funded, right wing political operation that has developed and introduced a number of anti-worker, anti-union, and anti-environment bills in various state legislatures during the last several years.¹²²

It is unclear whether unions in Colorado, particularly the IBEW, joined the company and other conservative forces in opposing Renewables Yes! The IBEW has opposed municipalization of Xcel Energy in Minneapolis, Minnesota.¹²³ As was mentioned in the introduction, unions currently have relatively high density in fossil fuel based energy generation and little to no representation in renewable energy. In Boulder, unionized workers maintain and operate Xcel’s coal plants, currently supplying Boulder with most of its energy. As a result, in Boulder and in other places where communities are considering remunicipalization, the community’s desire to shift to renewable energy often directly threatens union and non-union jobs in coal and nuclear-dependent workplaces. Under a liberalized energy market, workers have no guarantee of making a just transition to another good energy job. In the case of a remunicipalization effort like Boulder’s, the newly publicly controlled energy grid could procure its renewable energy from a private renewable energy company with no precedent for using union labor.

As Boulder moves forward with implementing its municipalization plan, the cost of doing so is unclear. These costs include acquiring the distribution system and related infrastructure, stranded investment costs for Xcel, separation costs, compensation for investments Xcel

made in Boulder including installation of rooftop solar systems, smart grid infrastructure and energy efficiency investments, and an operating cost budget.¹²⁴ Ultimately, the Federal Energy Regulatory Commission (FERC) will decide how much the City of Boulder must pay to reclaim the utility.¹²⁵ Once the City of Boulder regains control of the energy utility, it should be able to operate with enough revenue to invest significantly in the energy system, including the expansion of renewables, while keeping energy costs low.

Remunicipalization in the Broader U.S. Context

The creation of new MOUs has been quite rare in recent years in the United States. Since 2000, sixteen MOUs have been formed, almost always with significant opposition from the IOU involved. In 2001, San Francisco, California, tried to form a MOU. The IOU, Pacific Gas and Electric Company, spent two million dollars to defeat the ballot initiative. When Iowa City tried to form a MOU, MidAmerican Energy Company spent 26 times more than the municipal utility advocates to defeat the ballot measure. And in one of the largest battles in the United States around municipalization, Pacific Gas and Electric spent \$46 million in 2010 to try to pass a constitutional amendment to make municipalization harder. The initiative was nevertheless defeated.¹²⁶

Residents in Minneapolis, Minnesota, have recently organized a campaign to remunicipalize their electric utility called Minnesota Energy Options. Like Boulder, Minneapolis has a contract with Xcel Energy that is about to expire, opening the legal and political space for them to municipalize the utility. Like Boulder, citizens in Minneapolis are frustrated with Xcel for delaying their transition to renewables.¹²⁷

Today there are 2,008 public power systems in the U.S., serving 15% of the population. By contrast, there are 202 investor-owned utilities

that serve 60% of the population. Rural electric cooperatives are also significant actors in the sector. There are 877 serving 13% of the U.S. population. Next are power marketers, of which there are 173, serving 4% of the population. The public power utilities generally operate on a much smaller scale than IOUs, and the majority of energy generation and distribution in the United States is privately controlled. In addition to distributing far less electricity than IOUs, two-thirds of MOUs in the U.S. do not generate their own electricity; instead, they purchase it on the wholesale market.¹²⁸

Clearly there is a lot of room for further remunicipalization in the United States. This will not be easy given the concentration of power and wealth in the hands of IOUs. But cases like that of Boulder, Colorado, demonstrate that as communities' concern over the climate crisis grows and the failures of privatization become clearer, a broad coalition of citizen groups, environmentalists, and other social movements can build power and successfully reclaim utilities.

Energy Remunicipalization in Germany

Germany's ambitious plan to phase out nuclear and massively scale up renewables has significantly shifted the institutional geography of energy in Germany. A number of different forms of ownership have emerged in the last several years. Besides massive growth in energy cooperatives, municipalization of energy utilities is also occurring on a large scale. More than sixty municipal energy utilities have formed in Germany since 2007, and more than 170 communities have tried to reclaim at least some parts of the energy grid from private companies.¹²⁹

A 2013 survey of German citizens found that 93% of citizens are aware of the *Energiewende*—the name given to Germany's plan to transition to renewables—and that more than 80% of cit-

izens support it. By 2013, 23.4% of Germany's energy was supplied by renewables, and on some days of the year, renewables are supplying nearly 100% of Germany's energy. However, private utilities only own 11.9% of Germany's renewable energy capacity.¹³⁰ This means that 88.1% of Germany's renewables market is owned by other entities, and the privately owned utilities have lost roughly 20% of the total electricity generation market. It's also important to note that two other German cities—Frankfurt and Munich—never privatized their energy system, and both are currently working towards a 100% renewable energy target by 2025.¹³¹

Recent surveys show that large segments of the German public believe that private utilities are delaying the shift to renewables, while other entities like public utilities and cooperatives are moving quickly to scale up their wind and solar capacity. Indeed, a 2009 survey of German citizens found that 81% trust local municipal utilities while only 26% trust large corporations.¹³²

The section below reviews two recent remunicipalization cases in the German cities of Berlin and Hamburg.

Berlin, Germany: Citizens Power Utility

Sparked by activists from Berlin's anti-globalization movement, the Petition for Climate Protection group, and the NGO PowerShift, a broad coalition of 55 citizen, community, tenant, trade union, social justice, and environmental organizations came together in 2011 to lead an effort to remunicipalize Berlin's energy utility by way of a political coalition named Berlin Energy Table.¹³³ When viewed alongside the municipalization campaign waged in Boulder, the Berlin coalition represented a broader, more diverse coalition of organizations and interests. The Berlin Energy Table interest in remunicipalizing the utility grew from a range of concerns,

going beyond the climate concerns that tended to dominate the Boulder campaign. In Berlin the interest in remunicipalization was “not just about the city-state buying back the local power utility and making it more amenable to the policy targets of Germany’s *Energiewende* but also about how to make a local energy system more democratic and socially equitable as well as environmentally sustainable.”¹³⁴

The Berlin Energy Table collected 227,000 signatures in order to bring the referendum to a vote. However, the referendum that allowed citizens to vote for Berlin to buy back the energy utility from the state-owned Swedish company, Vattenfall, failed by a very small margin. The referendum required 25% of the population to vote and only 24% voted. However, of the 600,000 people who voted, 83% voted in favor of remunicipalization.¹³⁵ It is very conceivable that a referendum to municipalize Berlin’s utility will be introduced again and the measure could eventually be approved.

In the process of developing its plan for remunicipalization, the Berlin Energy Table went into considerable detail to outline how the new MOU would operate. These are some of the features that were developed by the Berlin Energy Table that demonstrate its attention and commitment to worker, community, and ecological issues:¹³⁶

- ⇒ Citizen representatives would be elected to an administrative council through democratic, direct elections;
- ⇒ Worker representatives would also be elected to the council;
- ⇒ Neighborhood assemblies would be held annually to allow Berliners to meet with their representatives to raise concerns and new initiatives. They would also have the opportunity to raise concerns outside of these assemblies via an ombudsperson;
- ⇒ The utility would have a mandate to achieve 100% renewables as quickly as

possible. Co-generation would be used instead of coal and nuclear until the utility could increase its energy efficiency, reduce consumption, and increase renewables;

- ⇒ The new MOU would offer unionized jobs to all current grid employees and maintain the workforce until 2020;
- ⇒ Ending energy poverty would be an explicit aim of the utility, and the public utility would be responsible for helping households do energy efficiency retrofits. These policies would be fair to renters and would try to avoid displacement and gentrification;
- ⇒ The MOU would do away with a basic energy fee and energy cutoffs and implement a progressive tariff that would rise with consumption;
- ⇒ The MOU would establish a fixed amount of “basic electricity” as a human right.

In common with the Renewables Yes! effort in Boulder, the Berlin Energy Table faced opposition from the company that currently operates the energy utility, the Berlin Chambers of Industry and Crafts, and the unions representing workers in the coal industry. The city government ultimately recommended a “no” vote on the remunicipalization as well.¹³⁷ Vattenfall ran a campaign against the remunicipalization efforts under the banner “security via competence.”¹³⁸

A small labor union of scientists supported remunicipalization of Berlin’s utility and actively participated in the coalition. The union representing mining workers—IG BCE—opposed the municipalization on the grounds that it would negatively impact jobs in coal mining and electricity generation. Because of IG BCE’s opposition to remunicipalization, the main unions in Germany, IG Metall and Ver.di, as well as the German trade union federation, DGB, did not take a position on the referendum.¹³⁹ According to Moss, et al.:

The latter [IG BCE, the miners' union] became a member of a "fact alliance" formed to lobby against re-municipalization together with local business organizations and to counter the joint efforts of the social movements' coalition. The business community has been critical of re-municipalization from the beginning. The Berlin Chambers of Industry and Crafts argue that re-municipalization would neither improve competition in the city's electricity market nor generate greater public revenue with which to promote the city's energy transition (IHK and HWK Berlin 2011). Echoing Vattenfall, they insist that "technical and financial issues be put at the center of the discussion" (IHK and HWK Berlin 2011, p. 2). Their strategy is to frame the public discourse in terms of the relative cost efficiency of municipal or private power utilities, the costs of buying up the power grid, the technological expertise required to run it, the legal obstacles to citizen participation and the consequences of re-municipalization for employees. This agenda, reflective of neo-liberal discourses on urban and infrastructure development in general, has sought to outmaneuver and belittle the commons-oriented arguments put forward by the Roundtable and BEB.¹⁴⁰

At the same time that the Berlin Energy Table was advocating for the city-state to take over the energy utility, an urban energy cooperative, BürgerEnergie Berlin (Citizen Energy Berlin) was campaigning for the cooperative to buy the city's electricity system.¹⁴¹ As of February 2014, 2,000 people had signed up with the BürgerEnergie Berlin cooperative, providing the organization with nine million euros in capital.

In comparison to Berlin's remunicipalization campaign, the campaign to establish an urban energy cooperative gave far less attention to the interests and needs of energy grid workers and to mechanisms to guarantee workers and local citizens had very participatory, democratic control over the energy grid. Still, both campaigns demonstrate the potent desire of citizens to reclaim the energy system to more public, democratic control and develop a concerted plan to significantly expand renewables.

Our Hamburg, Our Grid

The citizens of Hamburg, Germany, launched a campaign for remunicipalization in 2010. The initiative was called Our Hamburg, Our Grid, and it called for the public buy back of the energy grid, gas, and district heating supply from private companies Vattenfall and E.On.

As with the Berlin remunicipalization campaign, Our Hamburg, Our Grid argued that socially equitable, climate-friendly, and democratically controlled energy supply from renewables could only be achieved if energy infrastructure was held in public hands.¹⁴² Moreover, the campaign argued, Vattenfall and E.On were multinational companies focused on extracting wealth from local communities, like Hamburg, rather than providing a high quality renewable energy service.¹⁴³

The Hamburg effort was a grassroots campaign led by over fifty groups representing anti-nuclear activists, environmental organizations, anti-corporate campaigners, and faith-based communities. Vattenfall actively fought this movement, as did Hamburg's governing Social Democratic Party (SPD) and the largest opposition party, the conservative parties like the Christian Democratic Union (CDU).¹⁴⁴

The vote ended with 50.9% of Hamburg's voters approving the remunicipalization referendum in September 2013.¹⁴⁵ The City of Hamburg purchased the energy grid from Vattenfall in January 2014 for between 495 and 550 million euros. When the contracts for Hamburg's gas and district-heating infrastructure expire in 2018-2019, Hamburg will buy those back, too, for a preliminary price of 1.25 to 1.45 billion euros.¹⁴⁶

As the second largest city in Germany, Hamburg's successful remunicipalization of its utility is particularly inspiring because it included the public take-over of gas and district-heating

as well as the energy grid. Hamburg's remunicipalization case will be an instructive one to monitor over the next few years, to see how the remunicipalization process unfolds, how democratic the control of the energy and gas systems really is, how quickly and dramatically renewables are expanded, and how energy and gas workers are protected in the transition to a publicly owned and operated system.

A Growing Trend?

It appears that the remunicipalization of energy utilities is a growing trend and potentially an important way to expand democratic, public control and ownership of energy. Many communities want a greater say in how their energy systems are run. They want them to provide high quality, low cost energy, and they want to see a transition from fossil fuels to renewables. A number of factors currently make municipalization attractive: high energy prices, poor service quality, shut-offs when bills aren't paid, and continued dependence on fossil fuels demonstrate that private utilities, and corporatized public utilities, are driven by profit, not the public interest.

In the water sector, there has been significant resistance to privately controlled water systems and many successful efforts to return water to public control. In 2009-2010, the largest remunicipalization in Europe occurred when Paris reclaimed its water system from water multinationals Veolia and Suez. In Hamilton, Canada, the "largest privatization contract in North America ended with non-renewal," reclaiming the water system back to municipal control. Successful water remunicipalizations have occurred around the world, from Cochabamba, Bolivia, to Malaysia to Dar es Salaam, Tanzania, and many other places.¹⁴⁷ These campaigns emerge for a variety of different reasons but often are led by a coalition of unions and citizens groups. As resistance to the fossil

fuel industry's extreme energy agenda intensifies and the movements for climate justice and climate jobs grow stronger, campaigns to remunicipalize energy utilities are likely to increase.

There will be more opportunities for energy remunicipalization campaigns in this decade as the result of the expiration of concession agreements that were signed at the height of the privatization wave during the 1990s.¹⁴⁸ Once they expire, municipalities can choose whether they want to renew the contract with the private company or take the utility back under public control. However, as we saw with Hamburg, sometimes cities do not need to wait for the contract to expire. In Buenos Aires, Argentina, the government terminated its thirty-year contract with Suez for water provision when it was only half way through the contract period. Suez had failed to expand coverage or improve services as it had promised but continued to ask for contract renegotiations that would allow it to increase profits. Under public control, water service has been expanded to poor neighborhoods, and the water worker's union now owns ten percent of the utility. Terminating a utility contract before its end is definitely a more difficult path to remunicipalization—Suez sued the City of Buenos Aires for terminating its contract early for 1.7 billion U.S. dollars.¹⁴⁹ But it is not impossible, and it may become increasingly common as more communities successfully remunicipalize their energy systems, or even explore using eminent domain to take their utilities back under public control.

Released from the need to run the utility for profit, MOUs can use some of the revenue they generate from operating the grid to lower energy prices for community members, make improvements that will provide more reliable service, construct public solar and wind generation, increase staffing levels, and improve wages and benefits for utility workers. A good

example of this is the remunicipalization of the water system in Paris, France. In the first year that the water system was taken back under public control from private owners, Suez and Veolia, the municipality saved 35 million euros and lowered water prices by eight percent.¹⁵⁰ That money was used not only to improve and update Paris' water system but also to help Global South communities develop their own public water systems.

Worker and consumer cooperatives provide an interesting model for developing small-scale, community controlled renewable energy projects, but the majority of energy is currently produced and distributed by utilities, and they are still producing and procuring the vast majority of their energy from fossil fuels. There remains a pressing need to dramatically change the energy landscape—and to do this requires intervention in the ownership and operation of utilities.

Remunicipalization is one way to reclaim space for public control within the energy landscape. How democratic a MOU becomes depends on the strength and breadth of the movement demanding remunicipalization. Union involvement in remunicipalization campaigns could certainly expand the fight to include broader worker and social justice concerns. For example, unions, in collaboration with other movements, could use remunicipalization as a platform for reclaiming electricity as a high quality public service supported by unionized workers, with adequate staffing levels.

Beyond the Limits of Remunicipalization

From Remunicipalization to National Movements for Public Power?

Can municipalization be a route to advance public control of energy at the national level?

If so, can we move from localized community campaigns to nationwide municipal movements that result in a significant portion of the energy system being held under public control?

One of the limitations of current energy utility municipalization campaigns is that most of these efforts are aimed at operation of the grid only, not energy generation itself. Due to privatization and liberalization of the energy market, generation, distribution, and transmission of energy are often split up, meaning that utilities may only control one aspect of the energy system. Once MOUs get public control of the grid, they still have to procure energy from mostly private suppliers or build, own, and operate their own generation systems.

Many of these newly publicly owned utilities will have to enter a competitive market dominated by players with many years of experience, market knowledge, and substantial taxpayer subsidies for their operations. And once distribution of electricity is under public control, communities have some important decisions to make: from where will the public utility procure its energy? What type of energy will it procure—renewables or fossil fuels? And what price, if any, will be charged for electricity?

In South Africa, the country's largest union, NUMSA, has taken a different approach to returning energy to public control, starting at the national level. They have proposed that national resources like coal and other fossil fuels be nationalized and that the revenue from these industries be used to massively scale up energy efficiency, renewable energy construction, and production.¹⁵¹

In some cases, calling for nationalization of energy may be the best option. In others it may be taking private, bankrupted renewable energy manufacturers under public control, and in still other cases, the best option may be a

remunicipalization effort to reclaim the utility grid to public control.

Given the wave of concession agreements with private utilities that will expire across different parts of the world over the next several years, remunicipalization should be further explored. Gaining a foothold of control in the energy system at the point of distribution and transmission may allow utilities to show the broader public the significant advantages of public control of energy. If remunicipalized utilities are able to make significant gains in addressing worker, community, and ecological needs, it could become much easier to mobilize community, public, and social movement support for broader public ownership in other areas of the energy system, like generation, and from the sub-national to national levels.

Helping newly remunicipalized utilities be successful in the still liberalized energy market is important to building a broader, more powerful, and effective movement for public ownership and control of energy in the long-term. Solidarity and networking between already public utilities and communities undertaking remunicipalization is important. These communities can share experiences, expertise, and knowledge about how to run highly participatory, accountable, transparent, and renewables based energy systems, perhaps along the lines of the emerging discourse around “public-public partnerships.”¹⁵² Developing a national or international network of public utilities supporting one another is something that has been done quite successfully in the water sector and could be replicated in the energy sector.

Does Remunicipalization Mean More Democratic Control?

As was apparent from the examples of municipalizations that were shared above, there are varying levels of “publicness” in municipally

owned utilities. The process of municipalization is not simply one that involves going from a private company to a system that automatically meets public needs. The process of municipalization can only be regarded as an expression of “energy democracy” if the system becomes truly transparent and accountable to social and environmental needs. In other words, each case begs the question: do communities really take control of organizing their energy system? The Berlin Energy Table’s remunicipalization campaign demonstrated how a utility could be operated in a way that is truly democratic and responsive to social and ecological needs. The Boulder campaign was less focused on ensuring a highly participatory, democratic ownership and operating structure and more focused on using remunicipalization to expand renewables. Ensuring that public utilities are truly democratic, accountable, and transparent will depend largely on the strength of the movement for remunicipalization. A strong remunicipalization movement can advocate for and ensure that a new utility democratically elects a utility board or committee that represents citizens and workers in the region, with the power to run the system according to social and ecological needs and the interests of the community.

Learning from the Struggle for Public Power and Water in Los Angeles

Unions have consistently been strong supporters of public ownership of key services, like energy, water, healthcare, and sanitation. In the context of emerging remunicipalization efforts, based on communities’ interest in gaining local, democratic control of energy and expanding renewables, unions have often been on the opposite side of these efforts. Rather than being proactive in leading the transition to more democratically controlled, renewables based energy systems, unions are often siding with IOUs, supporting the existing centralized, fossil fuel-based energy system, and resisting

remunicipalization efforts. Ultimately, it will be easier to protect workers' rights and ensure union representation in the energy sector if public ownership of the system is expanded, particularly if unions are proactively supporting efforts to return the energy system to democratic control.

Despite unions' recent opposition to remunicipalization campaigns related to renewables expansion, union support for returning energy generation, distribution, and transmission to public ownership and control goes back over one-hundred years. The municipalization of Los Angeles' water and power systems in the early 1900s presents one of the best examples of unions playing a leading role in building successful public power. The Los Angeles (LA) labor movement—the central labor council and the IBEW in particular—launched and led a high-pressure, successful movement for public power in the early 1900s, playing “the strongest, longest role of all” of civil society and building massive public support for public ownership of energy, water, and other key services.¹⁵³ The LA labor movement's struggle to reclaim water and electricity to public control is described below as an instructive example of unions' historical and potential role in leading municipalization campaigns.

After building sufficient support for public ownership of the water system, the unions pushed the city to use a bond sale to take over the company. The bond sale was overwhelmingly approved by voters and finalized at a price much lower than the company had wanted. Six months after the vote, the Board of Water Commissioners took control of the water utility. Among their early directives were:

1. “barring the city from selling, leasing, or otherwise conveying its right to Los Angeles river waters or its control over their distribution unless so instructed by a 2/3 vote of the people;”

2. “channel all water revenues into a special fund for the sole purpose of operating, maintaining, improving and extending municipal waterworks.” Once the city took control of the water system, they provided water service at cost: water rates were one third of the price that they were under the private company.¹⁵⁴

The LA unions' support for municipalizing water and energy eventually led to the formation of a new workers' organization, called the Public Ownership Party. This party advocated strongly for LA to pass a bond measure for 23 million U.S. dollars to massively expand LA's water provision to residents and provide public power. The Union Labor News published this excerpt from John Murray of the Printers Union in 1902:

WHEREAS, the fact has been demonstrated to every thinking person that both the Democrat and Republican parties are completely dominated by corporations [...]; and

WHEREAS, these monopolies charge extortionate rate for service, shirk the payment of legitimate rate of taxation, pack political caucuses, dominate primary elections and nominating conventions, and name candidates who will be willing tools of these corporations;

THEREFORE [...] as the private ownership of public utilities is the cause of all political corruption, the Public Ownership Party has been formed for the purpose of promoting and establishing public ownership, and [...] (a) complete city ticket will be nominated.¹⁵⁵

The formation of the Public Ownership Party pushed the Socialist Party to a more progressive position on public utilities, calling for municipalization “of everything that is publicly used, with the highest degree of democratic management, and the complete elimination of social parasitism.”¹⁵⁶

As the campaign for a bond measure to expand LA's water provision and develop public power generation progressed, the bank and bond

syndicate decided to increase the interest rate LA would have to pay on the bonds. This was their attempt to discourage and penalize the city for pursuing municipal ownership, a tactic still used by bond underwriters. In response, some members of the LA City Council began advocating for the City to only take over the electricity grid, and not pursue owning its own power generation, too. Again, LA unions fought for LA to publicly own both energy generation and transmission. The unions convinced the City to bring a bond measure to vote for the City to own and operate energy generation and transmission and it won nine to one.

During this fight, the IBEW made it clear that they were supporting the fight for public ownership of energy, water, and other utilities on principle as well as in the interests of their members in the energy sector. The city leadership at the time was anti-union, but the IBEW still said it would rather work for the city, "bad as it was as an employer, than for Southern California Edison, Pacific Light and Power, and Los Angeles Gas & Electric." *The Citizen* newspaper reported "union members would much prefer to work for a city-owned power plant intended to serve all the people than to lend their aid to private power corporations [...] in existence only to pile up profits at the expense of the community."¹⁵⁷

The IBEW also recognized that the fight for public power was a reputational issue for the labor movement. It was a fight to secure good, union jobs in LA but it was also about unions fighting for quality public services that could meet communities' needs. The public water and power campaigns built extensive alliances between labor and community groups, and citizens developed tremendous respect for unions based on their commitment to remunicipalizing water and power:

the councils of Labor, in order to maintain the confidence of the rank and file and the respect of the public, must be consistent in all things. The delegat-

ed were warned that [...] if those who represented Labor lined up [...] against bonds, especially when it is well known that the Power Companies have a slush fund to spend, the solidarity that has been established would fritter away, the respect of the public and the confidence of the membership would be lost, and the power of Labor to demand either municipal bonds, a wage scale ordinance, or anything else, would be entirely gone.¹⁵⁸

The LA Central Labor Council's resolution to support the bonds included:

WHEREAS, The Private ownership of public utilities is not conducive to the best interests of the citizens of the community or to the Labor Movement; and...

WHEREAS, It has been clearly demonstrated to the Labor Movement of this city that the treatment of employees by the public utility corporations, under private ownership and control, has been unjust and the benefits and service to the general public [have] been unsatisfactory and the rates exorbitant; and

WHEREAS, It is the general policy of the organized workers of this country, whenever and wherever possible, to exert every possible effort to bring about municipal ownership of public utilities for the benefit of the common people...¹⁵⁹

The unions' fight for public utilities and the formation of the Los Angeles Department of Water and Power, which still exists over a century later, brought many benefits to LA residents. It has protected them from turbulent price increases and energy shortages that characterize the private power market in California.

Up until the 1950s, most public transit systems in the United States had their own publicly owned and operated power generation systems. When energy companies attempted to privatize the transit system's power generation system in New York City, the Transport Workers Union Local 100 fought hard to keep the power system under public control against pressure from private energy companies.¹⁶⁰ They were not able to keep the system from

being privatized, but it is just one historical example of many where unions have been among the main social forces fighting for public power. Their struggle for publicly owned and controlled power has been essential to protecting workers and growing unions, and it has been critical to forging strong alliances between unions and communities. Reclaiming unions' fight for public power to include public renewable power will be essential to remaking public ownership of energy to meet community, social, and ecological needs.

Reclaiming Public Utilities

In the debate over remunicipalization, existing public utilities are often criticized for their lack of responsiveness to community need, corruption, heavy reliance on fossil fuels, and other problems. These are all largely due to the liberalization of energy markets and the corporatization of public utilities. In short, in addition to trying to bring IOUs back under public control through remunicipalization, reforming existing public utilities—making them truly democratic and accountable to public need—is another important dimension to the struggle to realize energy democracy.

Today many communities, environmental organizations, and citizen-led campaigns are working to decrease fossil fuel dependency and scale up renewables. But very few are exploring how public utilities might play a major role in these processes. In many cases, public utilities are seen as an obstacle to these campaigns. This is unfortunate because publicly owned and operated utilities could be the most equitable, efficient, and effective path to energy democracy.

The possible role of public utilities in generating renewable energy and increasing energy efficiency is understudied, despite the fact that most communities in the Global North origi-

nally built out and gained access to electricity through publicly owned and operated entities, as will be discussed in the next section of this paper. Thus far efforts to develop and expand renewables have mainly focused on cooperatives or private utilities and energy companies. Given unions' significant representation in public utilities and the ability to better protect workers in publicly owned and operated systems, the trade union movement has a much greater role to play in developing and advocating for "public renewable power"—the direct development and expansion of renewable energy and energy efficiency through democratically controlled public utilities.

The next section examines why public utilities have been slow to transition from fossil fuels to renewables, and it begins a conversation about why and how public utilities can play a major role in expanding renewables and energy efficiency. While it is difficult to find public utilities that are stellar examples of democratically run, high quality, renewables-based energy providers, there are a number of public utilities that are focused on improving their service, saving the public money, and addressing climate concerns. A few of these examples are highlighted below.

Public Utilities and Renewables

Slow to Develop Renewables

The vast majority of public utilities still procure most of their energy from private producers, mainly relying on fossil fuels. At this point in most parts of the world, neither public nor private utilities have a financial incentive to expand renewable energy. In the case of private utilities, their contract with a city, county, or state typically guarantees them a profit. On the other hand, liberalization of the energy market has made it difficult for public utilities to compete with private utilities, especially

when it comes to major investments in new infrastructure. But both are threatened by small-scale producers of renewable energy, like “prosumers” of residential solar, which cut into the utilities’ market share. Government support for renewables often relies on market-based strategies that provide incentives, subsidies, or tax breaks to private renewable energy companies, further undermining public utilities’ ability to invest in and coordinate renewable energy development.

For both public and private utilities, the impact of customers trying to leave the grid—whether because they’re producing their own renewables or they’re trying to avoid tax levies on their renewable production—has been significant. As more and more customers leave the grid, the cost of operating and maintaining the grid goes up. This increases the cost of electricity for the remaining customers, disproportionately impacting low-income households and making it even more difficult for the utilities to make big investments in renewable energy and energy efficiency. In Europe, the top twenty private utilities have lost about half their value in the last few years because of the stranded assets left behind from customers leaving the grid for small-scale renewable production.¹⁶¹ Importantly, the devaluing of IOUs opens up an important opportunity for unions to advocate strongly for social ownership of these utilities and grid systems. This could be done at the national level—essentially renationalization—or through municipalities developing policies to scale up and otherwise support cooperatives.

The reluctance on the part of many utilities to develop renewables has caused significant tension between communities launching campaigns to expand renewables and the typically unionized workers who currently maintain and operate utilities’ fossil fuel or nuclear generation and distribution systems. If communities are successful in shutting down fossil fuel

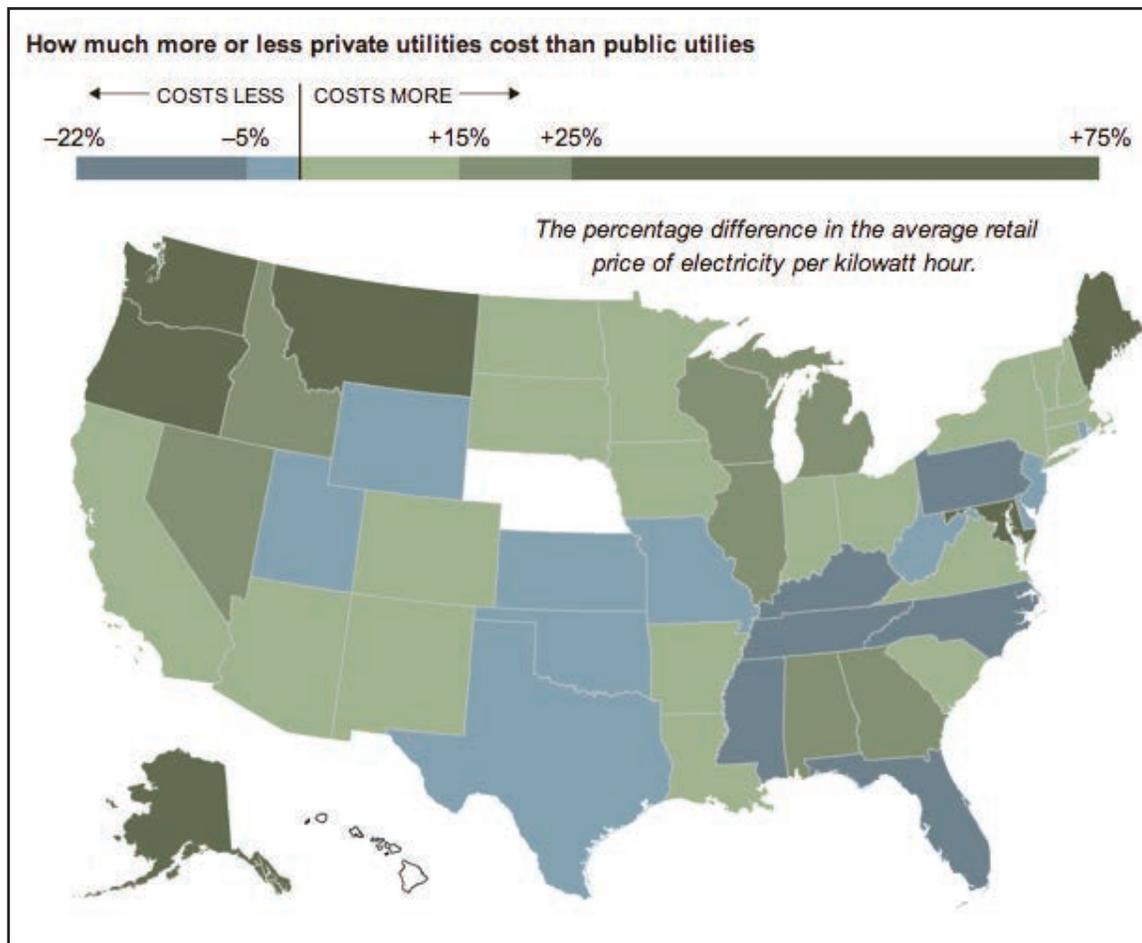
plants, the workers in those plants often lose their jobs and economic livelihoods. This has pushed utility workers and unions to oppose the development and expansion of renewables. This puts workers on the wrong side of climate protection and renewable energy struggles, in opposition to communities, environmental organizations, and others concerned with the climate crisis and the public health impacts of mining, transporting, and burning fossil fuels. Given the high union density in public utilities, a strategy to have public utilities build and run utility, community, and residential scale renewables promises to expand unionized job creation, strengthen public utility unions, and ensure high quality energy service from well-trained and highly skilled union workers.

The Public Power Advantage

There are a number of reasons why public utilities deserve serious consideration as the best way to massively scale up renewables. Many of the advantages that allow public utilities to provide electricity more cheaply and reliably than private utilities can be applied to the issue of expanding renewables and energy efficiency. As not-for-profit entities, public utilities can run at cost, which opens up space to provide electricity service with community members’ interests and needs in mind. On average, public power costs 10-15% less than electricity provided by private companies and contributes about 18% more of its revenues to municipalities than IOUs.¹⁶² Public utilities also typically feature better reliability, the ability to target investments according to local priorities, and lower borrowing costs.¹⁶³

Public utilities are generally less hostile to unionized workforces. As MOUs are locally owned and operated, they employ more local people and help keep energy dollars within local communities.¹⁶⁵ Many IOUs operate with a very centralized administrative and operations structure that requires little local employment.

Figure 2: Difference in Electricity Costs Between Private and Public Utilities¹⁶⁴



MOUs must employ managers, operators, customer service agents, repairmen, and a host of other workers to run and manage their daily operations. Privatized utilities, with their focus on increasing profits, are also known to run their operations with less than sufficient staffing levels to keep costs down. This became very evident in New York in 2012, when Superstorm Sandy severely damaged the electricity system. The IOU, Con-Ed, had to bring in 6,000 workers to repair the system because they had reduced the utility workforce to dangerously low levels.

In principal, public utilities are committed to the common good and are the “design instru-

ment of regional infrastructure policy for the public.”¹⁶⁶ For this reason, municipal utilities are usually subject to less state regulatory oversight than IOUs, allowing them to act more quickly and innovate in new ways, as with the development and deployment of renewable energy.¹⁶⁷

Equity, Speed and Scale: Public Renewable Power

Public utilities can directly build and operate renewables at all scales. Many communities are focused on developing small or residential-scale solar and wind. This can be in order to have more direct control over meeting their energy needs or because large-scale renew-

able projects can have negative ecological impacts—some large-scale solar and wind projects require vast amounts of water or cause major and permanent disruption to the surrounding ecosystem. Given the scale of the climate crisis and the vast energy needs of some large, dense cities, it is likely that utility-scale and smaller-scale renewable energy supply projects each have an important role to play in reducing emissions. Public utilities can be directly involved in both types of projects, constructing, owning, and operating both small and large scale renewables.

Currently, most public utilities procure their large scale generation supply from private companies and IOUs. In other words, public utilities distribute and transmit the energy, but do not own and operate the plants that supply it. By only owning and controlling the distribution and transmission of energy, communities are reliant on private companies and IOUs to develop renewable energy. It also means that the private IOUs have significant control over the price they charge for the energy, including what they need to charge in order to profit from the energy. But public utilities can build, operate, and maintain their own renewable energy generation. Given many communities' interest in scaling up renewable energy and public utilities' access to low-interest public financing like bonds, this is more than possible.

One of the most important aspects of having a public utility construct and operate solar and wind is that it can be done at the scale and speed needed to address the climate crisis. Thus far, having individual households or worker and consumer cooperatives install solar and wind has not achieved the scale of renewable deployment that is needed to quickly and dramatically bring down emissions. In order to ensure that global emissions peak in the next few years, solar and wind installation as well as energy efficiency retrofits need to be rolled out *en masse*. Public utilities have the

capacity to coordinate and carry out this scale of work. With well-trained, unionized workers, the work can be done efficiently and correctly. The New York City Building Trades Council and the New York City government signed a project labor agreement in 2015 to rebuild residential homes damaged by Superstorm Sandy. The federal government is providing over \$400 million for nearly 20,000 homes to be repaired in the next two years, all with union labor. This provides an interesting model for how large-scale energy efficiency and renewable energy work can be done quickly and with union labor. Indeed, a number of energy efficiency retrofits will be done on these 20,000 homes as they are repaired and rebuilt.

Large-Scale Renewables

In the early 1900s, Los Angeles unions, including the central labor council, fought hard for the Los Angeles Power and Water Department to own both its energy supply and transmission grid.¹⁶⁸ A large part of this fight was winning voter approval for the large public bonds that would pay for the construction of hydroelectric dams and hundreds of miles of water aqueducts that were used to supply LA with fresh water and electricity. In general, public financing has played an important role in making significant investments and improvements to public energy systems in the past.

Public institutions also have access to low-interest, general obligation bonds that can be paid off over a long period of time through taxes. Some LA unions advocated for “currency” or “popular” bonds. Currency bonds mean that bonds are sold to ordinary citizens for small amounts that collectively add up to significant amounts, particularly in large cities like Los Angeles. Like other bond underwriters, citizens are then able to earn interest on their share over time. Rather than having thousands or millions of dollars of interest go to wealthy individuals or corporations, currency or popular

bonds keep the value of the interest within the local community. These types of popular bond strategies come into play because the large banks, wealthy individuals, and corporations that underwrite bonds and determine their interest rates may be opposed to public ownership of energy and thus try to stop it through increasing the interest rates on bonds.

Utilities, both public and private, also use customer rate increases to fund energy system upgrades and improvements. Raising energy prices unfairly impacts low-income customers, however, so utilities concerned with equity try to avoid it. Over the years, communities have explored providing a basic amount of energy to all households for free in the same way as, for example, public education is. Providing a basic unit of electricity for free means that lower-income families are not disproportionately affected by rising energy prices. Unions in Los Angeles advocated for this while they were battling for public ownership of energy and water systems. The Berlin Energy Table also advocated for this during their struggle for remunicipalization. Until recent deregulation, Norway's public power system offered two energy plan options to the public—a basic unit of energy for a low cost or a slightly higher consumption plan that cost a bit more.

Smaller-scale renewables

Under private sector initiatives, or even through consumer and worker cooperatives, individuals self-select to install solar or wind power and often need funds for an initial investment. This means that lower-income households and communities are much less likely to install solar and wind power. This in turn means that the installation rates for solar and wind are far below what is needed to address the climate crisis. In addition to directly constructing and operating large renewable projects, public utilities can also build, own, and operate community and residential-scale projects.

Public utilities installing, owning, and maintaining parts of the energy system at the household level is actually relatively common. For example, in some Canadian provinces, if a household needs a new hot water heater, they call the public utility to tell them they need a replacement. The public utility then schedules a time to come to their house and install the new heater. Individual households pay nothing for the new heater or its installation, but they receive the benefits of having a more efficient hot water heater and a lower monthly electric bill. Third party ownership arrangements are already common in private sector solar installations. Under this arrangement, a private company pays to install solar on a private home. While the individual doesn't have to pay for the installation, they also do not own the solar panels or have control over their energy supply. Public utility installation and ownership of household-scale solar is a compelling and viable alternative to these kinds of private third party agreements.

Some public utilities are already significantly expanding their renewable energy and energy efficiency work. Some examples are highlighted below, providing insight into how public utilities can play a leading role in energy efficiency and renewable energy work at a large scale.

Public Utilities Leading

Many public utilities do energy efficiency work at no cost to the customer, including installing insulation and providing efficient light bulbs. Customers need only request the efficiency improvements. Or, in some cases, every customer is provided with the improvement—public utilities do the upgrades one household after another by region. The UK's public utility did this in the 1960s and 1970s, temporarily asking families to move to other housing while they did a complete energy retrofit of their home. The work took a few days and was done at no



cost to the residents. Below are several examples of public utilities doing this work today in the United States.

Sacramento Municipal District Utility (SMUD)

SMUD is a MOU serving 600,000 customers in and around Sacramento, California. SMUD was created in 1946 after a 23-year legal battle with the IOU, Pacific Gas and Electric. SMUD has made significant investments in solar, wind, and energy efficiency since the 1980s and indeed has the ambitious goal of reducing its GHGs by 90% by 2050.¹⁶⁹

SMUD built its first utility-scale solar farm in 1984, a one megawatt plant that has since been expanded to a 3.2 MW plant. It also developed a distributed solar installation program for its customers that led to it managing over 600 solar projects by the year 2000, which accounted for ten percent of all solar PV installed in the U.S. at that time. Since SMUD was buying solar products in bulk, its installation costs were much lower than those of comparable projects in the U.S.—SMUD’s solar installation project costs in 1999 were “equal to the average cost nationwide in 2012.”¹⁷⁰

SMUD built its first wind farm in 1994, now a 100 MW operation. It also has a significant energy efficiency program. For example, it has planted 500,000 trees to reduce air conditioning demand in Sacramento. Importantly, SMUD is expected to meet the California state renewable energy standard of 33% renewable by 2020. Even with its major investments in solar, wind, and energy efficiency projects, SMUD’s average retail electricity rate is 25% lower than the state average.

Austin Energy

The public energy utility in Austin, Texas, has also made important strides towards ambitious renewable energy goals. Austin Energy

recently completed a 30 MW utility-scale solar installation and has installed over 1,000 solar systems on residential rooftops totaling 8 MW of in-city solar energy, and it plans to have 35% of its energy mix supplied by renewables by 2020, reducing its GHGs 20% below 2005 levels by 2020.¹⁷¹ 15% of Austin Energy’s supply came from renewables in 2012. Energy audits are mandatory for all residential and commercial buildings more than ten years old, and it partners with a local credit union to provide loans for energy improvements on residential buildings.

Chattanooga’s Electric Power Board (EPB)

The MOU in Chattanooga, Tennessee, has installed world-class smart grid technology to reduce energy demand, improve electricity service, and provide its customers with excellent Internet service. Chattanooga’s Electric Power Board (EPB), created in 1935 by the Tennessee state legislature to deliver inexpensive power from the TVA, built a \$111 million fiber optic network that allows smart meters to communicate wirelessly with the fiber network.¹⁷² This project was completed seven years ahead of schedule and is also used to deliver high-speed internet service to its customers.

Aspen Utilities

In Aspen, Colorado, the MOU already provides 75% of its electricity from hydroelectric and wind power and hopes to move to 100% renewables (including hydropower) within five years.¹⁷³ The mission statement of the City of Aspen Utilities says:

*To manage and maintain our water and electric resources from their resources to our customers in a manner that most efficiently meets, or exceeds, all related State and Federal standards, while driving the reduction of Aspen’s greenhouse gas emissions and energy use through policy, outreach, energy efficiency and renewable energy programs.*¹⁷⁴

Winter Park, Florida Electric Utility

Citizens in Winter Park, Florida, successfully remunicipalized their electric utility in 2001. Their major concern with the IOU, Progress Energy Florida, was around reliability—residents frequently lost power. The IOU refused to build underground electrical lines to make them more resistant to storm damage unless the city paid for it. When the remunicipalization initiative went to a vote, 69% voted to remunicipalize the utility. Since then, the new public utility has completed undergrounding projects for five neighborhoods and has put a number of mainline feeders underground. Winter Park has also started a major energy efficiency program where the city pays for a significant portion of the costs related to duct repair, attic insulation upgrades, heat pump replacements, energy efficiency windows, wall insulation upgrades, reflective roofing, and solar water heaters.¹⁷⁵

Dover Public Utilities

A number of other public power utilities in the United States offer important programs for expanding solar generation. Dover Public Utilities in Delaware offers customers direct cash incentives of up to \$128,000 annually to install solar systems. Non-profit customers of the utility receive twice the rebate amount available to other customers, totaling

up to \$256,000 of direct cash incentives per year.¹⁷⁶

Unions Essential to Remunicipalization and Public Renewable Power Fights

With support and leadership from unions, a powerful movement for “public renewable power” can be built. A political program built around public renewable power could bring together unions, citizen groups concerned with local and democratic control of energy, and other movements concerned with the climate crisis. It would be an opportunity to quickly and dramatically scale up renewables and create thousands of union jobs—in a way that is equitable and democratic. Given the fossil fuel industry’s current control over the energy sector, unions will need to play a lead role in building a broad-based, powerful movement for public ownership and control of the energy sector, including support for municipalization campaigns. Experience from other sectors—water and sanitation, for example—show that gaining and regaining public control of the energy sector is essential to protecting workers and strengthening unions—particularly in the energy sector—as we transition to a renewables-based energy system. It’s also important to ensuring this transition occurs at the pace and scale necessary to address the climate crisis and in an equitable manner, without harming low-income households.

4. Public Goods and Public Works Approaches to Energy Transition and Climate Protection

Lead author: Sean Sweeney

The purpose of this final section is to further develop the case for a public goods and public works approach to advancing energy democracy and climate protection.

The approaches to energy democracy discussed so far in this paper have many positive social and economic features. Each can potentially make a major contribution to building a new energy system that is democratically run for the public good. The fight for a new

energy system is likely to unfold on several fronts, and forming cooperatives, reforming the utilities, exerting municipal-level control over electricity systems, and other initiatives are all important to one degree or another.

But the climate challenge, along with the impact of pollution from fossil fuels on human health, means that more attention needs to be placed on the speed and scale of the transition. There are presently not enough cooperatives, not enough cities converting to renewable energy, and not enough utilities pivoting away from fossil-based power to significantly alter the “business as usual” scenario. This can, and must, change. If it does not change, we will face a planet between four and six degrees warmer by 2100, and large regions of the world are likely to be uninhabitable. As noted at the outset, the science-based emissions reduction targets and timetables proposed by the IPCC make it necessary for the energy base of the global economy to be completely transformed during the course of the next two or three decades. Renewable energy needs to be scaled up dramatically and fossil-based power generation and transportation needs to be drastically reduced or phased out altogether. The energy system *is* changing, but it is not changing quickly enough.

A public goods and public works approach to advancing energy democracy and climate protection therefore deserves to be given serious consideration because such an approach could give impetus to the kind of positive expressions of energy democracy discussed in previous sections, perhaps helping them to have a much larger impact.

The “Depression and World War Two” Approach

The severity of climate change and related crises and the need to act quickly has evoked

comparisons with the period of the Great Depression. As is well known, mass unemployment and high levels of social unrest compelled governments of the 1930s to take decisive action—in many cases taking control of the banks, developing infrastructure projects to provide jobs, and other emergency measures. Similarly, during World War Two—a crisis of a different kind—governments mobilized vast amounts of capital and redirected huge supplies of labor toward the military and the industries that served it. In both instances (economic depression and escalating war) the core concerns of the private sector revolving around profit were no longer primary; indeed the incapacity of private corporations to serve the public interest in times such as these was widely acknowledged during the debates of the period.

In recent years, a small handful of writers and commentators have suggested that the climate crisis demands the same kind of policy response from governments.¹⁷⁷ They argue that dealing with climate change (and other planetary limits) will require the suspension of business as usual and profound societal restructuring in the decades ahead.

Unions and the Case for a Public Goods Approach

Unions do not accept a “six degree world.” But in order to avoid a six degree world, a radical shift in policy is needed. The way the issues are defined also needs to change, and this can begin by asserting a “public goods” approach to climate protection.

The trade union movement could be a strong advocate for such an approach, especially in the knowledge that market-based policies have failed to deliver the energy transition we need and these policies will almost certainly continue to fall short. A public goods approach

to the fight against energy poverty and for full energy access can also be asserted. This means that unions can propose public goods approaches in a way that addresses these two massive challenges simultaneously. The basic principle behind a public goods approach to energy transition is simple: the future of human civilization is at stake, and everyone will therefore benefit from a planned, orderly, and transparent energy transition that devolves as much power as possible to workers, communities, and municipalities. However, governments will have an important role. A massive deployment of renewable energy will require high levels of planning and coordination in order to ensure that the right mix of renewables is developed. How much solar photovoltaic? How much solar thermal? Wind power? Tidal power? The answers to these questions will depend on specific locations and circumstances.

Because the benefits are many and varied, and stand in stark contrast to the unimaginable damage likely to result from “business as usual,” a public goods approach is fully justified and required.

Learning from the New Deal

How can climate and energy-related public goods be delivered? Historically, the connection between public goods and public works is a strong one. The public works programs developed in numerous countries in the 1930s and 1940s and in the former colonial world in the name of nation building during the post-war period changed the global political economy of the middle decades of the 20th Century.

The experience of the New Deal in the United States is particularly relevant when considering how an energy transition can be implemented in the next two or three decades. With the United States in a deep economic and social crisis, the Roosevelt Administration established the Public Works Administration (PWA),

the Works Progress Administration (WPA), and the Civic Works Administration (CWA). These programs employed millions of workers and built thousands of miles of roads, hundreds of airports, and tens of thousands of public buildings. The WPA alone built 78,000 bridges. The U.S. government committed the equivalent of 13% of U.S. Gross Domestic Product (GDP) to these programs. To put this figure in context, the Obama Administration’s stimulus package under the American Recovery and Reinvestment Act committed just 2% of GDP—and most of this commitment came in the form of tax cuts that generated only modest numbers of new jobs.

The TVA and the REA

Two major projects under the PWA were the Tennessee Valley Authority (TVA) and the Rural Electrification Administration (REA). In the mid-1930s, barely 10% of rural dwellings in the United States had electrical power. By 1955 the percentage was 97%. Before the TVA and REA, private power companies had no incentive to connect mostly poor rural dwellers. These dwellers had no means to pay for the electricity, therefore connection costs were unlikely to be recovered and profit potentials for the companies were extremely poor—a situation that is not qualitatively different from the challenges facing global and mass-level deployment of renewable energy today.

During the New Deal, Senator George Norris commented:

The experience of the [REA] indicates that the limitation on the extension of electric service to rural areas has been due to the prohibitive costs of line construction; to excessive demands for cash contributions from the farmers to pay for the lines that would serve them, to high [electricity] rates which discourage the abundant use of current, and to the traditional policy of the private utilities of extending their monopolistic franchise as widely as possible, while attending their actual service only to areas which are most profitable.¹⁷⁸

In May 1935 President Roosevelt, by Executive Order, created the REA and allotted \$50 million to the task of rural electrification. The Order also stipulated that 25% of the allocation should be spent on labor and that 90% of the labor required should come from jobless people receiving unemployment relief. Private companies applied for REA loans and submitted a plan to extend rural electrification, but these plans were rejected. Instead, loans were granted to “municipalities, people’s utility districts, and cooperative, non-profit and limited dividend associations.”¹⁷⁹ Applications for loans came from state rural electrification authorities, rural power districts, and cooperatives. The REA led to almost 1,000 electricity cooperatives being established, many of which are still functioning.

Loan recipients were declared independent bodies responsible for their own affairs, but the REA itself provided specialists and technicians, conducted field visits, sent out operating memoranda and bulletins, and convened conferences of system superintendents and meetings of system officials and members. In 1942, the National Rural Electric Cooperative Association (NRECA) was formed to bring together the 958 cooperatives in 46 states that had been set up or stabilized during the REA.

One of NRECA’s priorities was to protect the REA itself against efforts by the political right to restrain the REA’s scope of operations. The right wing argued that the provision of cheap electricity was distorting electricity markets and, by the late 1940s, led industry from non-REA areas to relocate in the areas served by the REA.¹⁸⁰ The right was particularly infuriated by the fact that REA loans had been fixed at a three percent rate of interest in 1936, reduced in 1944 to just two percent, much less than the rates the U.S. Treasury had typically paid on its own borrowings. Furthermore, borrowers under the REA had a long time to pay back these low-interest loans. From 1936 to 1944 the pay-

back period was set at 25 years. After 1944 the period was extended to 35 years. And operators were not expected to begin paying back the loans until a full five years had elapsed. In a 1963 report, a horrified American Enterprise Institute documented that many of the loans had not been fully repaid within the 25 to 35 year time period.

At the outset, REA loans were extended to connect rural areas to central power supplies, much of it generated by the government-owned TVA. But once connected, the demand for electricity from rural areas began to rise and, coupled with the advance of industrialization and the population growth in the rural areas, more loans were sought—and granted—for power generation and transmission. By 1960, 55.3% of REA loans were for generation and transmission.

The concerns of the political right that the REA, along with public works programs like the PWA and WPA, were signs of “creeping socialism” gained little traction during this period. Public works programs during the New Deal had originally been mainly intended to provide relief for the—increasingly organized and militant—unemployed, but several key figures in the Roosevelt Administration thought the real value of public works programs were their contribution to economic development. The REA was particularly successful and survived long after the PWA and WPA were dissolved.

The impact of rural electrification was enormous. Living standards and labor productivity in rural areas rose dramatically from 1935 to 1955. Such was the success of the REA that it was emulated with impressive results in numerous countries, including the Philippines, Costa Rica, and China (after 1950).¹⁸¹ Rural electrification became an important part of the Cold War. China was determined that its rural electrification program show both the potential of the planned economy and (before

1960) the Sino-Soviet partnership. President John F. Kennedy described the TVA as “the best ambassador that the United States has ever had,” and praised it for the “great contribution to the free world’s efforts to win the minds of men.”¹⁸² President Johnson sought to transfer the TVA model to the Mekong Basin as part of the “hearts and minds” effort during the period of escalating war in Vietnam.¹⁸³

U.S. Trade Unions and New Deal Public Works

The American Federation of Labor (AFL) supported public works programs organized under the PWA and WPA. The AFL joined with private contractors in lobbying for public works on the understanding that agreements reached with contractors for infrastructure projects would mean more work for union members. The AFL was, however, suspicious of PWA and WPA agencies that sought to hire directly. The “craft” or “skilled trades” unions in the U.S. had set up a “hiring hall” system to ensure that union members were hired in way that prevented wage and standards competition between individual workers and also helped workers who had been waiting for work the longest to be hired first. The PWA and the AFL came to an arrangement whereby a union had 48 hours to fill a position on a project, and if it could not do so the project manager under the PWA could hire from elsewhere. There existed considerable tensions between skilled “contract” labor and “day labor” within the PWA and WPA, leading to “labor advisory boards” being set up to work through such problems.¹⁸⁴

The Roosevelt Administration was somewhat divided regarding the role private contractors should play in public works projects. Interior Secretary and head of the PWA, Harold Ickes, expressed concern that the private contractors often expected to turn a 20% profit on projects and were known for their overpricing of

inputs—including labor inputs. He preferred, where possible, for the PWA to both hire and perform the work with minimal private sector involvement.¹⁸⁵ But the skills and expertise—along with trade union support—rested with the contractors, making it difficult in most instances for the PWA to perform every function in house. The PWA reduced the influence and costs of private contractors by having the PWA purchase all construction materials for projects in order to prevent overpricing and excessive profiteering.

In the case of the TVA, the relationship between the unions and the Authority was path breaking in terms of New Deal—and eventually postwar—industrial relations. In 1935 the TVA’s board issued a unilateral statement recognizing the right for employees to organize, affiliate, designate representatives, and bargain collectively with management. This occurred in the face of FDR’s own reluctance to endorse the idea of public sector unions. Unions were also given a voice in formulating policies, rules, and regulations defining labor standards and conditions of employment. In 1937 the AFL established the Tennessee Valley Trades and Labor Council to represent 14 unions working on TVA projects. The TVA also opened the door to white-collar worker organizing, with the American Federation of Government Employees gaining recognition just a few years after the union was launched.¹⁸⁶

The Potential of Public Works Today

The experience of public works programs during the New Deal are important to today’s trade union discussions on climate protection and energy transition in several respects.

If nothing else, the historical experience of New Deal-era public works reveals the stark limitations of the existing neoliberal approach to energy transition—an approach that is ap-

parently more inclined to accept six degrees of global warming than it is to embrace the unavoidable truth that deep structural change in the global economy is needed. The key to “thinking outside the box” is to first be aware that the box actually exists, and it is questionable whether most proponents of neoliberal ideas have grasped this reality.

But liberal and many nominally social democratic policy approaches are similarly constrained in their almost obdurate rejection of the idea that governments can and should play a *leading role* and be a *driving force* behind the transition to a renewable energy system. A September 2014 study released by the Center for American Progress (CAP) and the Political Economy Research Institute (PERI) is typical in this respect. It asserts that if the U.S. is to meet its climate obligations, the private sector must play the leading role. The authors state, “Our policy agenda must ultimately be effective in mobilizing clean energy investments by private business owners. *There is no other way* in which the United States can realistically achieve its 20-year CO₂ emissions reduction target” (emphasis added). To support this claim, the authors quote the former Chief of Staff to the Clinton White House, John Podesta: “The scale of the energy transformation is simply too large for public sector resources and programs to tackle alone.”¹⁸⁷

The report notes that annual investment levels in renewable energy would need to reach roughly \$110 billion in order for the United States to meet its emissions reduction obligations. However, in 2013, the combined value of U.S. investments in wind and solar stood at a little under \$20 billion.¹⁸⁸ From this perspective, the role of policy is to help the private sector make up the shortfall. Government’s role is to “shape the market” by removing existing obstacles to private sector investment by promoting low-cost financing, solidifying tax incentives, and other subsidies and also “expand

the market” by ensuring demand reaches the levels needed to attract private capital.¹⁸⁹

In arguing for private sector-driven solutions—the one true path—the CAP/PERI study inadvertently makes the case for a New Deal public works approach. Who, other than the government, can relatively easily make up the investment shortfall of \$90 billion per year, expand the market, and provide “policy predictability” for a protracted period? And if such investments are indeed wise for private corporations, why should they not be equally wise for governments? The New Deal thinkers understood that the private sector would only invest if the risks were such that profit was either very likely or all but guaranteed. The fact that we are facing a civilizational crisis brought about by runaway climate change will have little bearing on private investors whose sole priority is to make “healthy” returns on investment. To leave the fate of the human species in the hands of private corporations and bankers amounts therefore to extreme recklessness.

The Promise of Jobs in Renewable Energy

The climate-driven imperatives for “scale and speed” in the deployment of renewable energy means that public works programs for renewable energy could be very large or very plentiful, depending on the jurisdiction or entity employing and organizing the labor involved. It is well known that an ambitious deployment of renewable energy can create large numbers of jobs.¹⁹⁰ Global wind power-related employment has expanded more than eleven-fold in the past 15 years, while solar PV employment has soared close to 290-fold during the same period of time.¹⁹¹

Several recent studies have reinforced the now familiar claim that an aggressive approach to emissions reductions and renewable energy

deployment can create large numbers of jobs. Recent studies by Jacobson and Delucchi examining New York State¹⁹² and California¹⁹³ carefully examined how a fairly rapid shift towards wind, wave, and sun power (WWS) could generate large numbers of direct jobs in the renewables sector, more than offsetting jobs lost in fossil fuels over a 15-year period by a large margin. The CAP/PERI study referred to above concluded that if the United States reduced emissions according to science-based targets the number of jobs in renewable energy would equal 1.38 million per year over the next 20 years—if the \$110 billion annual investment in renewables were to materialize.¹⁹⁴

In taking a fresh look at the New Deal experience, it is worth noting that both the REA and the TVA were top-down and therefore “statist” in their design and in their implementation—but only up to a point. The REA allowed considerable space for local autonomy and control in the form of cooperatives and municipal-level bodies. The REA played an important coordinating and convening role, offered technical expertise, etc., but the actual delivery of electrical power was managed and performed by local actors. The TVA was hailed at the time as an agency that epitomized the benefits of *democratic* planning involving unions, communities, and elected representatives.¹⁹⁵ These programs engaged the private sector, but more often than not on terms that served the public good—in stark contrast to today’s pillaging of the public sector under the guise of “public private partnerships.”

The low-interest financing of projects was obviously crucial to the success of REA projects over a two-decade period. Again, government weighed the costs of inaction (chronic low levels of rural productivity, unemployment and poverty, and a depressed agricultural sector) against the costs of taking action to prevent high levels of social unrest and prolonged hardship for millions. The benefits of electri-

fication and other public goods did not need to be monetized in a way that every dollar was accounted for; instead it was understood that the value, monetary as well as social, would be far greater than the costs.

In today’s climate policy discourse it is widely accepted that the damage that can be expected to occur as a result of climate change will far exceed the costs of reducing emissions. This basic point was made by the former Chief Economist to the World Bank, Nicholas Stern (now Lord Stern), in the landmark document *The Stern Review on the Economics of Climate Change* published in 2006.¹⁹⁶ The point was reiterated in Stern’s 2014 report titled *Better Growth, Better Climate: The New Climate Economy*. This report estimates that global investments in a low-carbon future “will only cost an additional U.S. \$270 billion per year on top of the U.S. \$6 trillion we will spend anyway. Reduced fuel expenditures—no fuel needs to be bought for solar or wind power—and other savings are expected to save an estimated \$5 trillion by 2030, fully offsetting any additional investments.”¹⁹⁷ This additional investment is equivalent to roughly one-eighth of annual world military expenditures in 2013, calculated at \$1,747 billion.¹⁹⁸

But the climate policy discourse, which takes a longer-term and “macro-societal” view, is incompatible with the assumptions and behavior of current energy policy and the unshakable commitment to liberalization and marketization. It is ironic that Stern, once a prominent World Bank neoliberal, forgets that one of the consequences of privatization and marketization of large parts of the energy sector—and other key sectors—has meant that long-term societal considerations seldom impose themselves on the calculations made by the main private sector players who operate in the world of the here and now where electricity prices, for example, change by the minute and short-term profit making is the main priority.

As noted above, it is still widely accepted that the mass-scale deployment of renewable sources of power will be contingent on renewables being able to compete with fossil-based power in liberalized electricity markets. Unions and their allies must challenge this head on and in so doing point to the fact that the most formidable challenge associated with the transition to renewable energy concerns the scale of the task and the limited amount of time available to complete it.

The transition to renewables cannot wait until renewables are “competitive” or reach “grid parity” with fossil fuels. Jacobson and Delucchi have calculated that, in order to decarbonize power generation, millions of wind turbines and tens of thousands of solar power plants will need to be operational in just two decades.¹⁹⁹ There are countless studies that say more or less the same. One of the most striking features of the public works programs set up during the New Deal is the sheer number of projects that *were* successfully completed—and completed in times when taxation revenues had collapsed due to the economic crisis. There is no obvious reason why public works programs deploying renewable energy could not be similarly successful in the years ahead.

Building a Trade Union Politics for Public Works

Neoliberal thinkers, including many latter-day social democrats, may have assumed that both public works and government agencies to administer them had been consigned to history, never to be seen again. But the case for public works approaches to energy transition and climate protection is today overwhelming.

In three countries, unions are already beginning to advocate for such an approach. In the UK and South Africa, as well as Norway, unions have endorsed campaigns operating under the

name “One Million Climate Jobs.” These campaigns are based on rigorous calculations of the number of jobs that could be created through the implementation of an aggressive and science-based approach to emissions reductions. However, in each instance the campaign calls for a National Climate Service specifically set up to take responsibility for the main tasks in terms of planning, resource allocation, and research and development—a role not dissimilar from the one played by the PWA or REA during the New Deal.

Public works programs dedicated to renewable energy deployment and other “energy transition” tasks and services, such as decommissioning old coal-fired power stations, could be performed at local, regional, and national levels. Public utilities suitably “reclaimed” to reflect their public mission as the result of citizens’ movements such as the ones seen in Boulder, Berlin, and elsewhere could organize existing and new hires in ways that deploy renewables “behind the meter” or, where appropriate, by way of centralized utility-sized projects. Municipalities can also employ workers directly to perform project design, installation, and maintenance work for renewables and energy conservation work in the same way as they hire workers (or, at least, as they did before privatization and contracting out became so widespread) to maintain parks, playgrounds, schools, etc. Cooperatives, too, could contract with a public works agency to plan, design, and erect community-based renewables projects that could then be maintained and operated by community-level consumer and perhaps worker-owned power generation cooperatives.

When compared to most private sector projects, public works programs are also more likely to provide space and recognition to unions, and union rights to represent workers could be written into the design of the programs themselves, as was the case with the TVA.

The Economics of Public Works

Public works programs cost money. But it is well known that money paid in wages often goes straight back into the economy in the form of purchases of basic necessities, thus triggering a healthy and almost immediate multiplier effect.

In the United States, a March 2011 study conducted by Philip Harvey from Rutgers University calculated that the annual cost of creating a million temporary jobs for unemployed workers in a government-administered, direct job creation program would cost \$46.4 billion per year. However, the same \$46.4 billion “would trigger a multiplier effect that would create an additional 414,000 jobs outside the program.”²⁰⁰ The study also calculated having one million people working instead of being unemployed would generate additional tax revenues that would reduce the net cost of the program to \$17.8 billion. Ending subsidies to fossil fuel companies could more than cover the annual net cost of such a program. The United States federal and state governments gave away \$21.6 billion in production and exploration subsidies to the oil, gas, and coal industries in 2013.²⁰¹ According to UNEP, government subsidies to fossil fuels globally amounts to \$500 billion annually.²⁰²

There are of course numerous ways of covering the costs of public works programs. A carbon tax on polluters is just one. Another option is to build out renewable energy first in the public sector itself. If, for instance, solar PV was installed on all public buildings, the full cost of the PV (at 2014 prices, including installation and maintenance costs) could be recovered within five years. Electricity supply to these public facilities will also be sharply reduced. When measured alongside the costs the public sector would be expected to pay for electricity from non-renewable sources over a twenty-year period, it is highly likely that the savings

over the same period will exceed the cost of the public works program by some distance. Electricity costs to sustain the public sector—including schools, hospitals, and other government buildings—will probably fall, potentially freeing up revenue for other social programs and purposes. If energy conservation programs were developed alongside renewables, the savings would be even greater.

The public sector can provide not only a means of financing investment in renewables but also a collective resource of knowledge embodied in workers who are securely employed, paid a decent wage, and working in conditions that prioritize safety for both workers and the public. It also has the flexibility to develop renewables on a large scale or to support small-scale, decentralized, off-grid local operations.²⁰³

Centralized or Decentralized Generation?

There has been considerable debate among advocates of energy democracy revolving around the issue of the respective roles of centralized and decentralized renewables generation. Some hold the view that centralized or utility-scale generation is inherently undemocratic and that only decentralized power can ensure democracy, transparency, and equity. Others take the view that the issue cannot be reduced to size or location but depends on the mission and purpose of the entity overseeing the generation itself. TVA power generation projects tended to be large, but the way the Authority built a social base and engaged workers and communities stands in stark contrast to some of today’s large energy concerns—public as well as private.

There are disagreements, too, that are of a more technical nature. The technical case for centralized renewables is based on the need to deal with the problem of fluctuating supply,

sometimes called “intermittency.” Not every day is a sunny day or a windy day, and sometimes the levels of generation can fall quickly and dramatically. Dealing with this fluctuation has become perhaps the most formidable challenge facing the transition to renewables. The existing utilities moving into renewables maintain that the best way to handle these fluctuations is constructing large projects, such as wind farms off-shore where the wind blows more continuously; laying down cross-continental transmission lines that can compensate for local variations; or building large systems for storing electricity—essentially a centralized or “big projects” approach. Wave and tidal power is also believed to be a solution to the need for “base load” back up capacity, and the wave and tidal power projects presently on the drawing board are typically large.

Meanwhile, the technical case for decentralized generation makes reference to the fact that advanced information technologies will allow for a high level of end-user flexibility and the development of “smart” options for energy storage and in-house management for both commercial and residential users.²⁰⁴ Solar PV power, in particular, can to a large extent be generated in the immediate vicinity of consumption points, reducing the necessity of transmission. The availability of new semiconductor based power electronics has led to an increasing interest in “microgrids.” Microgrids have been deployed extensively in Cuba. In recent years, 180 micro-hydro systems have been put in place harnessing energy from water in streams and rivers. The number of independent solar electric systems in rural areas of the country has risen to over 8,000. It is worth nothing that Cuba’s efforts to transition from its dilapidated centralized system have also been combined with aggressive energy conservation. Cuba is the first and only country in the world to completely convert from incandescent bulbs to 100% compact fluorescents (CFBs) via a government program implement-

ed free of charge. 72 million CFBs were distributed.²⁰⁵

The narrow time frame for mass-level renewable energy deployment suggests that both centralized and decentralized renewable energy will be needed. Presently utility-sized projects are dominating the deployment of solar PV across the globe. By early 2013, about 90 plants in operation had capacities in excess of 30 MW, and some 400 had at least 10 MW of capacity. The world’s 50 biggest PV generating plants have a cumulative capacity of more than 4 GW, or more than 80 MW on average.²⁰⁶ However, this may say more about the bias of the utilities for large-scale projects, and the strength of the large private producers (IPPs) in shaping energy policy than it does about the inherent advantages of big projects over on-site decentralized generation.²⁰⁷

The decision to develop centralized or decentralized capacity—or both—has no real bearing on the public works option. Public works programs could be deployed for either or both purposes, and many of the skills sets required are probably transferable across any type of project. Meanwhile the debate around the merits and demerits of centralized and decentralized generation will continue.

Supply Chains

Public works programs established by reformed utilities, MOUs, or national governments will in many instances have to deal with insufficient domestic supplies of components and, in some cases, skills. The latter has already presented problems—such as in the UK offshore wind sector—even where renewable energy is moving forward only at a snail’s pace.²⁰⁸

In recent years the collapse in solar PV panel prices is forcing a consolidation of the solar industry, with the loss of tens of thousands of

manufacturing jobs in Europe, North America, and China.²⁰⁹ Consolidation is also taking place in the solar inverter industry, with production shifting away from Europe toward China and the United States.²¹⁰ Wind power production capacities (80 GW) also exceed market demand (44.7 GW installed during 2012) by a substantial margin, which led to job losses in turbine manufacturing. This consolidation puts a limit on the renewable energy *manufacturing* employment that any country may expect in the short term.

The “insourcing” of manufacturing is possible in principle, especially if the policies to deploy renewables to scale appear irreversible. Governments can of course consider beginning their own PV and wind turbine production. Publicly owned manufacturing facilities or cooperatives are not inconceivable but may initially involve “joint venture” arrangements in order to allow for the transfer of skills and knowledge.

Jobs can, however, be created in the production of basic components and in the construction, installation, and maintenance of renewable energy projects. The production of solar modules amounts to about 25% of the cost of solar, and labor costs are a small portion of that 25% (perhaps 10%). Invertors add a further 10% of the cost of solar. But solar PV also needs mounting structures such as extruded aluminum rails (the modules are connected by these rails) that can be produced by domestic metal fabricators. “Follow the sun” single-axis and double-axis tracking systems are also needed.²¹¹ Large-scale deployment will also stimulate demand for cables and connectors and other electrical components. Array planners are also needed. A Heinrich Böll Foundation study of the solar industry in Germany claims that as manufacturing has shifted to China the cost of solar has decreased, leading to higher installation rates, presently at 7.5 GW of new capacity per year on average. This has

in turn created employment in installation, components, and project development.²¹²

A public works installation program could, therefore, generate demand for components that could be met by small and medium-sized companies (SMEs) operating “close to the market.” This is qualitatively different than engaging in Public-Private Partnerships (P3s) where profits for the private corporation are all but guaranteed. Many SME’s would prosper as a result.

Upgrading Transmission Infrastructure

Scaling up renewable energy goes hand in hand with the expansion of transmission infrastructure. The best solar and wind renewable energy sites are often located far away from consumption centers or existing transmission networks. Therefore tapping into a large amount of newer renewable sources requires bringing transmission services to multiple dispersed locations. Achieving ambitious renewable energy targets will require a considerable overhaul of transmission systems—and establishing new ones in the Global South where energy poverty is a major problem.

The present neoliberal model does not have the policy tools to deal with this challenge. As generation, transmission, and distribution functions have been separated from each other and sold off (“unbundled”), this has separated the roles of energy provider and grid operator. Transmission upgrades to ensure that renewable energy can be integrated are expensive. Massive investments in transmission upgrades and expansion are required. The cost of building a nation-wide smart grid may well be hundreds of billions of dollars in many instances.²¹³ However, the cost of transmission continues to be a relatively small percentage of overall electricity costs. Therefore the costs

of upgrades could be comfortably absorbed or equitably dispensed if they were spread across the entire system.²¹⁴

Transmission companies are presently reluctant to invest in improvements that will benefit power generation companies. This has led to complex discussions about appropriate pricing—who will pay and how much?—and the struggle to find a resolution to this conflict has impeded the progress of renewables.²¹⁵ New wind and solar projects can be completed in as little as six months, but transmission upgrades presently take considerably longer—which means renewable energy companies can expect to be waiting to be operational while paying interest on their own borrowing.

Renewable energy investors will therefore not push forward with projects until transmission lines are guaranteed to be in place. Meanwhile, traditional utilities are often in no hurry to connect sources of renewable power when in many instances all the connections do is add to the level of disruptive competition they face from the renewables sector. And the utilities have been disinclined to engage in “anticipatory planning”—which would require developing the infrastructure to connect renewable energy *before* the project has been approved or completed.

A recent World Bank study acknowledged that, “Traditional transmission planning practices can result in long delays in renewable energy projects.” Clearly these delays have to be avoided if scientific targets for emissions reductions are to be achieved. The study called for an end to “reactive approaches” (i.e. transmission companies waiting for the connection request from a renewable energy company) and urged “proactive transmission planning” whereby transmission upgrades are made in order to attract investors in renewables with the costs shared across the entire system. This, says the World Bank, is a less expensive

and faster way to scale up renewables. “Waiting for generators to express their interest in interconnecting to network and attending to such requests individually can strain utility resources and finally delay the interconnection process. In addition, reacting to interconnection requests individually can lead to significant cost inefficiencies.”²¹⁶

Again, the conclusion of this World Bank study inadvertently makes the case for a New Deal public works approach. Proactive transmission planning only makes sense in the context of a *regional or national transition plan* that ensures that capital is mobilized in a manner that makes the upgrades in a way that takes advantage of economies of scale and pools the necessary skills and expertise. Aware of the fact there is unlikely to be a stampede of private companies offering to meet this need, the World Bank concludes that, “A public sector-led proactive planning effort” is needed, followed by private sector engagement to “build and maintain the requisite transmission projects.”

But there appears to be no compelling reason why private companies need to “build and maintain” the projects—other than to conform to the World Bank’s own unswerving commitment to public-private partnerships. Despite its own single-minded focus on mobilizing private sector investment, the authors of the CAP/PERI study concluded that “grid modernization for renewable energy [is] a major national undertaking [...] President Franklin Roosevelt led the massive project of building an electrical grid system that could serve rural America during the New Deal era.”²¹⁷ A similar intervention from the White House is, they argue, needed today.

Public Works in the Public Interest

New Deal public works programs generated much-needed employment and developed the



infrastructure for the modern post-war economy. A public works approach to renewable energy deployment and climate protection in general offers perhaps the best means of addressing the challenges of “speed and scale” identified above and will generate large numbers of jobs within the public sector and for private supplier companies in the SME sector. It liberates the energy transition from the dictates of profit and the “return on investment” calculus, while still generating work and wealth beyond the public sector. Public works projects can also harness the skills of the scientific and R&D communities that want to use their abilities in ways that can help address the climate crisis and at the same time create meaningful careers.

Conclusion

This paper has attempted to describe how the struggle for energy democracy is unfolding at a number of levels. It has also attempted to draw attention to some of the challenges and opportunities for unions that wish to play a role in driving an energy transition that increases worker and community control, creates jobs, and can potentially build union membership and enhance unions’ reputation.

This is, of course, more a work in progress. Any exercise in “mapping the possible” is restricted by the fact that what is considered possible may change over time. All we can do as unions is look for concrete ways to play a role through the development of policy, by assisting campaigns, and through basic organizing. We also need to share knowledge and experiences—as has been evident with the movement for union-supported public-public partnerships in the water sector.

In a historical sense, this is not uncharted territory. Workers and unions in many parts of the

Public works are therefore a tool for energy democracy in that they can be designed in ways that allow space for unions, community-based organizations (including cooperatives), and municipal authorities to have real influence over the energy transition we desperately need.

Much more research is needed to further develop the trade union case for a public works approach to energy transition and climate protection and to demonstrate how public works projects can reinforce positive developments in terms of energy cooperatives, municipalization, and the reclamation of utilities in order to have them serve the public interest.

world have a proud tradition of forming cooperatives to meet the basic needs of workers, such as fresh food, housing, and transport. When private markets failed to meet these needs, workers’ organizations intervened. Workers and unions fought for public services and for public works programs to deliver them and the infrastructure on which these services depended. There is a need for unions to reconnect with this tradition in a conscious and rigorous manner. Given the energy and climate emergency, there is a need to both think big and pay attention to the details at the same time.

We have seen how the struggle for democratic control of power generation is expressing itself on several “fronts,” and it is likely to grow in strength in the years ahead. But at this point in time there is no conscious movement for energy democracy that is guided by clear class-based or trade union principles. Moreover, given the climate crisis, there is a certain naivety when it comes to issues of the required speed and scale of the transition.



Unions therefore have an important, and perhaps decisive, role to play. In particular, union members in power generation know the challenges of transitioning to renewable energy and have a firmer grasp than most regarding what can be done and what may pose more of a challenge. As noted above, unions do not support “renewable energy by any means necessary,” and they know that the answer to the expanding economic and political power of the fossil fuel corporations is not to trans-

fer comparable power to large, for-profit renewable energy multinationals. Unions also know that an increase in renewables will not automatically lead to a decrease in fossil fuel use or an increase in worker rights and protections.

Another energy system is necessary. And it is clearly possible. The stage is set for unions to explore ways to play a clear and positive role in making it happen.

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