BUY RENEWABLES RIGHT

THE GLOBAL SHIFT TO CLEAN ENERGY MUST HAPPEN FAST TO AVOID THE MOST CATASTROPHIC EFFECTS OF CLIMATE CHANGE. RENEWABLE ENERGY BUYERS CAN PLAY A LEADING ROLE IN DRIVING A CLEAN AND GREEN FUTURE—ONE THAT MEETS GOALS FOR CLIMATE, NATURE AND COMMUNITIES.

The Buildout Challenge

The world must increase renewable energy generation more than nine-fold to meet climate goals.[2] Utility-scale onshore wind and solar energy, which are expected to make up the vast majority of new investments in power generation capacity,[3] require large areas for development.[4] In the United States, for example, achieving deep decarbonization by 2050 will require an area potentially as large as Arizona.[5] In building out renewables to meet the climate challenge, we threaten to exacerbate the global biodiversity crisis through widespread impacts to wildlife habitat, and land-use conflicts over these impacts could slow the clean energy transition.

The Nature Conservancy and the National Audubon Society are teaming up in the drive for a clean and green buildout of renewable energy.

Audubon The Nature Conservancy

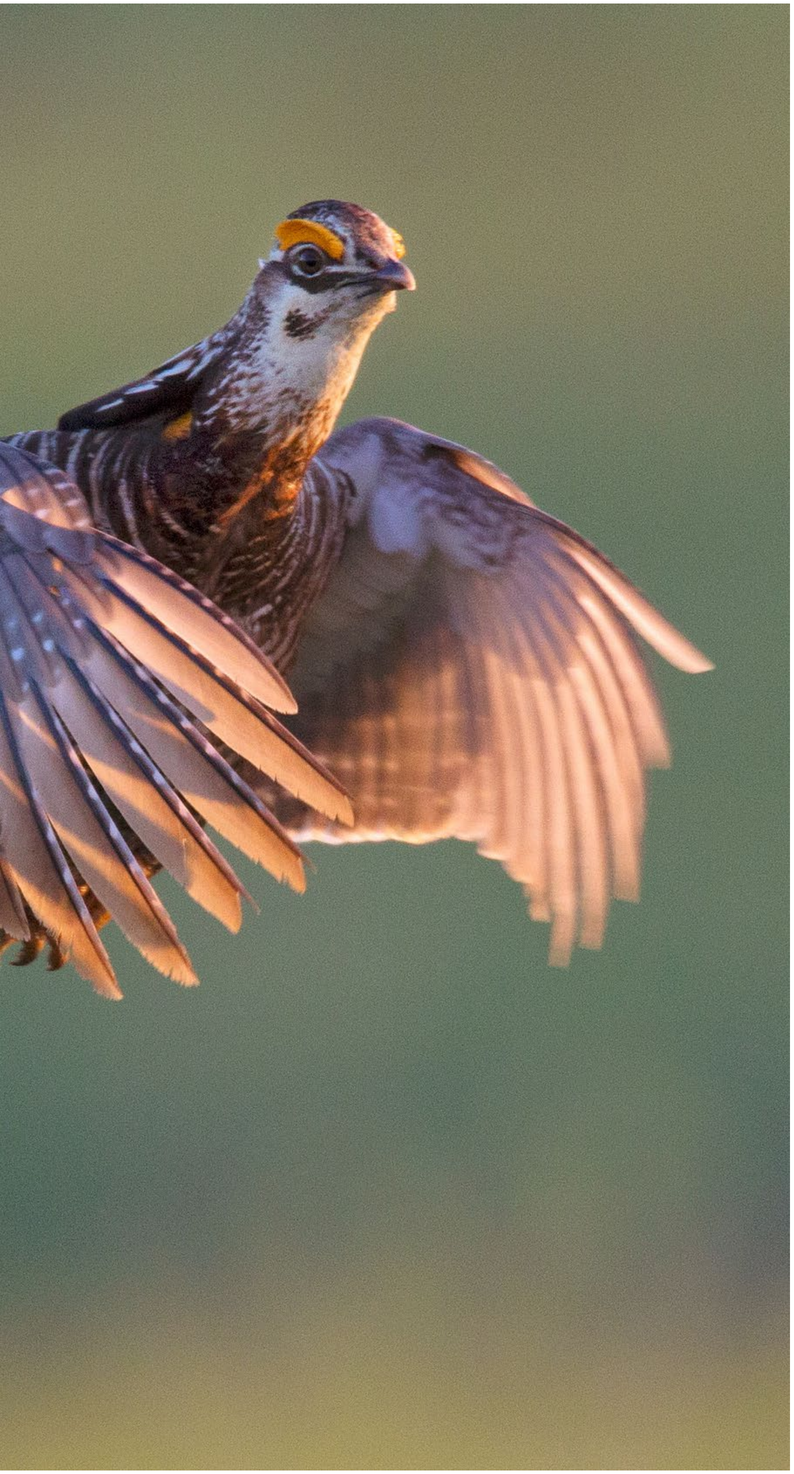
A Clean and Green Future

The good news is the world has an abundance of areas with high renewable energy development potential that are also low impact for nature. These lands are more than enough—by many multiples—to meet the world's renewable energy needs.[6] We do not need to trade impacts to wildlife and natural lands for renewable energy development. By taking steps today for a clean and green buildout, the world can meet goals for climate, nature, and communities in ways that are faster, cheaper, and better. We believe the buildout must:

1. **GO SMART TO GO FAST.** Avoiding environmental and social conflicts over renewable projects through proactive planning could speed the buildout. A study of solar projects that compared high biodiversity sites to low biodiversity sites found permitting was three times faster (13 vs. 35 months) and project costs were 7-14% lower when projects were sited in areas of low biodiversity.[7] Likewise, projections for U.S. wind deployment show that if concerns over wind siting related to wildlife, public engagement, and other factors are not addressed, costs could increase and wind capacity could decrease 14% by 2030 and 28% by 2050.[8]

2. **AVOID CARBON STORAGE LOSS.** Over 27 million acres of natural lands could be lost to the renewable energy buildout under business-as-usual projections, releasing almost 1.5 $GtCO^2$ storage due to the clearing of forests and vegetation—an amount equal to 8.6% of the overall Paris Agreement emission reduction goals.[9]

3. **PROTECT NATURE.** Globally, about one-third of the areas with high potential for solar and wind energy are also areas with high biodiversity values.[10] Renewable energy development could impact over 7.7 million acres of "Key Biodiversity Areas"[11] and the ranges of 1,574 threatened and endangered species.[12]



Get Involved

Buy Renewables Right is an initiative of The Nature Conservancy and National Audubon Society, leaders at the intersection of conserving birds, wildlife, lands and waters, and advancing the clean energy buildout to meet climate goals. The science is clear that in order to avoid the worst impacts of global warming, we must reach net zero emissions by 2050. Global temperature rise threatens two-thirds of North American birds with increasing risk of extinction and makes clear the urgent need to conserve resilient and connected landscapes as "climate corridors" for wildlife. These concerns also translate to people, especially frontline communities that have historically shouldered the burden of climate change.

To address these challenges to nature and people, we encourage companies to join us—with the power of the Conservancy's 50 state chapters and Audubon's 500 regional, state, and local offices nationwide—in the drive to *Buy Renewables Right*. Corporate renewable energy buyers are shaping renewable energy markets and demonstrating leadership on the global stage through their ambitious renewable energy and sustainability commitments. They will play a pivotal leadership role in how the clean energy transition hits the ground.

We aim to work with a small group of corporate leaders to co-develop renewable energy buying solutions—principles and procurement guidance—for a renewable buildout that meets goals for climate, nature, and communities. By engaging with the Conservancy and Audubon on *Buy Renewables Right*, in collaboration with renewable energy buying associations and other stakeholders, corporate leaders can help forge a clean and green future for generations of people and wildlife.

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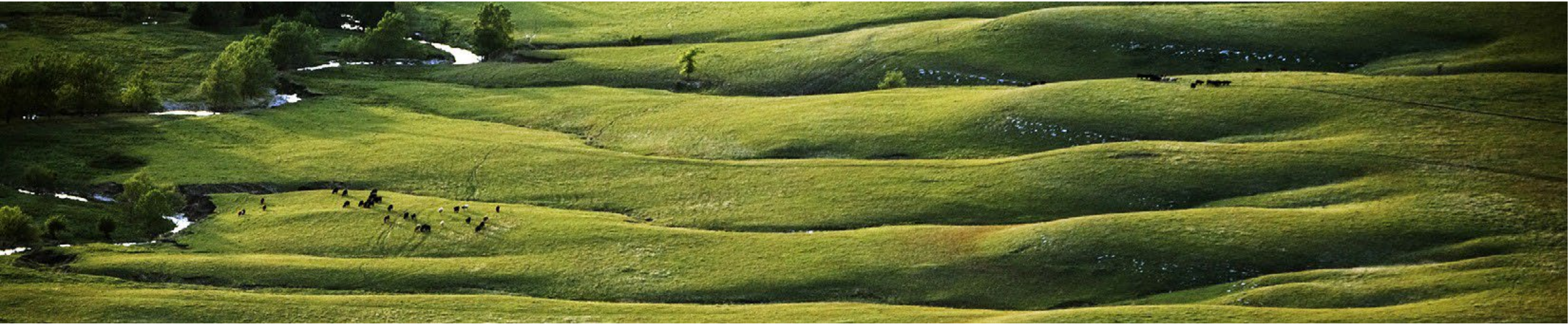

Endnotes

1 This is based on the goal of limiting global warming to 1.5°C, which would have important benefits for people and ecosystems compared to the Paris Agreement target of 2°C. For example, by 2100, global sea level rise would be 10 cm lower and coral reefs would decline by 70-90 percent instead of the catastrophic loss of virtually all reefs (> 99 percent) with 2°C. See: Intergovernmental Panel on Climate Change (IPCC). 2018. "Summary for Policymakers." In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.). World Meteorological Organization. Geneva, Switzerland.

2 The 9-fold increase is from 1,094 TWh of renewable energy production in 2015 to 9,017 TWh to meet NDC targets. Even more renewable energy production will be needed meet the recommendation of the Intergovernmental Panel on Climate Change to limit global mean temperature to less than 2.0 deg C above pre-industrial levels, and, if possible, 1.5 deg C. Baruch-Mordo, S., J.M. Kiesecker, C.M. Kennedy, J.R. Oakleaf, and J.J. Opperman. 2019. "From Paris to practice: sustainable implementation of renewable energy goals." Environ. Res. Lett., 14(2).

3 BloombergNEF analysis estimates that $11.5 trillion will be invested globally in new power generation capacity between 2018 and 2050, with $8.4 trillion of that going to wind and solar and a further $1.5 trillion to other zero-carbon technologies such as hydro and nuclear. BloombergNEF. 2018. "New Energy Outlook 2018." UPDATE to 2019 New Energy Outlook. https://about.bnef.com/new-energy-outlook/ $13.3 trillion of new investment between now and 2050 – 77% of which goes to renewables.

4 Kiesecker J.M. and Naugle D.E. 2017. Energy sprawl solutions: balancing global development and conservation. Ed. J.M. Kiesecker and D.E. Naugle. Island Press: Washington, D.C.

5 TNC reviewed three studies that projected the energy production mix in the United States through 2050 and considered a "high-renewables" or "deep decarbonization" scenario (NREL 2012, Haley et al. 2019, Williams et al. 2014). For these projections we focus on industrial onshore wind and utility-scale solar because these are expected to provide the bulk of new renewable energy, noting that this may change due to unforeseen technological advances. A review of these studies finds a large range of wind and solar capacity: from 840,000 – 2,300,000 MW. Considering the amount of current renewable capacity, this reflects a net increase of roughly 725,000 – 2,192,000 MW. We estimate spatial impacts for future utility-scale solar PV development between 3 – 6 million acres (Ong et al. 2012) and future onshore wind development of 19 – 70 million acres (DOE 2008). We find a total land requirement range of 22 – 76 million acres (including turbine spacing and assuming all utility-scale solar PV would be ground-mounted). See: U.S. Department of Energy (DOE). 2008. 20% Wind Energy by 2030. DOE/GO-102008-2567. https://www.nrel.gov/docs/fy08osti/41869.pdf; Haley, B., R. Jones, G. Kwok, J. Hargreaves, J. Farbes, J. Williams. 2019. 350 ppm Pathways for the United States. Evolved Energy Research. https://docs.wixstatic.com/ugd/294abc_95dfdf602afe4e11a184ee65ba565e60.pdf; National Renewable Energy Laboratory (NREL). 2012. Renewable Electricity Futures Study. Hand, M.M.; Baldwin, S.; DeMeo, E.; Reilly, J.M.; Mai, T.; Arent, D.; Porro, G.; Meshek, M.; Sandor, D. eds. 4 vols. NREL/TP-6A20-52409. Golden, CO: National Renewable Energy Laboratory. https://www.nrel.gov/analysis/re-futures.html; Ong, S., C. Campbell, G. Heath. 2012. Land Use for Wind, Solar, and Geothermal Electricity Generation Facilities in the United States. EPRI, Palo Alto, CA:1023819. https://www.epri.com/#/pages/product/1023819/?lang=en-US; Williams, J.H., B. Haley, F. Kahrl, J. Moore, A.D. Jones, M.S. Torn, H. McJeon. 2014. Pathways to deep decarbonization in the United States. The U.S. report of the Deep Decarbonization Pathways Project of the Sustainable Development Solutions Network and the Institute for Sustainable Development and International Relations. Revision with technical supplement, Nov 16, 2015. http://deepdecarbonization.org/wp-content/uploads/2015/11/US_Deep_Decarbonization_Technical_Report.pdf

6 Baruch-Mordo, S., J.M. Kiesecker, C.M. Kennedy, J.R. Oakleaf, and J.J. Opperman. 2019. "From Paris to practice: sustainable implementation of renewable energy goals." Environ. Res. Lett., 14(2).

7 Dashiell, S.; Buckley, M.; Mulvaney, D. Green Light Study: Economic and Conservation Benefits of Low-Impact Solar Siting in California, 2019.

8 Tegen, S., E. Lantz, T. Mai, D. Heimiller, M. Hand, and E. Ibanez. 2016. "An Initial Evaluation of Siting Considerations on Current and Future Wind Deployment." National Renewable Energy Lab. NREL/TP-5000-61750.

9 Kiesecker J., S. Baruch-Mordo, C. M. Kennedy, J.R. Oakleaf, A. Baccini, and B.W. Griscom. 2019. "Hitting the Target but Missing the Mark: Unintended Environmental Consequences of the Paris Climate Agreement." Frontiers in Environmental Science, 7:151. doi: 10.3389/fenvs.2019.00151.

10 Santangeli, A., T. Toivonen, F.M. Pouzols, M. Pogson, A. Hastings, P. Smith, and A. Moilanen. 2016. "Global change synergies and trade-offs between renewable energy and biodiversity." GCB Bioenergy, 8:941–51.

11 Key Biodiversity Areas are "sites contributing significantly to the global persistence of biodiversity" in terrestrial, freshwater and marine ecosystems. See: KBA Partnership. "What are KBAs & how are they identified?" http://www.keybiodiversityareas.org/what-are-kbas. Last visited November 20, 2019.

12 Kiesecker J., S. Baruch-Mordo, C. M. Kennedy, J.R. Oakleaf, A. Baccini, and B.W. Griscom. 2019. "Hitting the Target but Missing the Mark: Unintended Environmental Consequences of the Paris Climate Agreement." Frontiers in Environmental Science, 7:151. doi: 10.3389/fenvs.2019.001

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