ADDRESSING THE INTERCONNECTED ISSUES OF ENERGY SPRAWL

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In a so-called post-truth era, we are actually collecting more data on a wider variety of factors than ever before. These data sources can—and should—help us to make better decisions on a range of comprehensive issues.

Communicating this data and insight, and the resulting perspectives, is difficult. Each side in the discussion typically focuses on one issue in isolation because it's easier to report and digest, and, as sometimes happens, because the different sides have a specific agenda they hope to influence

Yet the reality is that no singular issue is an island—issues, related data sets, and the audiences that they affect are interconnected through many strands and threads. We need to study these threads —collaboratively—if we hope to gain comprehensive solutions to the

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issues that we face.

We need to take an approach where multiple stakeholders and experts with different perspectives work in favor of a common, aligned effort—a centralized group whose role is to help stakeholders act in concert. An innovative, structured approach would cross over government, business, philanthropy, communities and other related parties to act on specific complex problems in order to achieve sustainable solutions.

Texas's Trans-Pecos Region

A prime example is an increasingly complicated problem that is happening right now in West Texas, centered in the Trans-Pecos region. As the Cynthia and George Mitchell Foundation's Marilu Hastings pointed out, this area of West Texas is the most energy-intensive geographic region in the United States, if not the world, according to the Bureau of Economic Geology at The University of Texas at Austin. At the same time, according to the World Wide Fund for Nature, this ecoregion may be the most biologically diverse desert in the world.

In the Trans-Pecos, we have a confluence of stakeholders, issues, and agendas.

On the one hand, tremendous discoveries and exploration efforts are underway for sources of energy, from fossil energy (oil and gas) tied up in shale and low-permeability sandstone and limestone formations, to renewable wind and solar energy that are being installed throughout the region. This diverse portfolio of energy generation in West Texas provides

substantial flexibility in how the state is powered, and also provides significant energy generation and economic benefits to the United States.

On the other hand, this energy development requires a larger support (land) area, and this increased land need, sometimes called energy sprawl, could be more than two times larger than the land needed for urban and residential development over the last 50 years. At the national level, energy development—all types of energy development—could lead to the largest amount of land disturbance between now and 2040. It's clear that this energy renaissance requires natural resources, namely water and land, to be viable.

Balancing Energy Development, Natural Resources, and People

Water is a crucial aspect of fossil energy development. It is used to drill and stimulate wells (e.g., fracking), and is co-produced along with the energy itself. This requires:

1. collection at the well site or in regional gathering areas, and

2. management to avoid accidental release and to provide the opportunity for recycling and reuse (the salty, co-produced water cannot be released into the environment without significant treatment and permitting).

Water disposal through deep well injection is perhaps the safest means of managing this resource. However, it comes with its own downsides,

namely the opportunity costs from loss of the water (i.e., potential beneficial use, possible recovery of rare earth elements, etc.) and the potential for water injection to induce earthquake activity. Paradoxically, this excess water is being produced in an arid region of the state where water is scarce.

On the land side of natural resources that support energy development, the lands of the Trans-Pecos, home to the Chihuahuan Desert, also support a vibrant and fragile ecosystem that has survived and thrived for thousands of years.

Deserts are deceptively biodiverse, and they provide shelter and habitat for numerous plant, bird, reptile and mammal species, some of which are threatened and endangered according to the U.S. Fish and Wildlife Service. Numerous migrating birds rely on the Chihuahuan Desert as resting areas during journeys north and south. As noted earlier, the desert is considered one of the most biodiverse lands in the Western Hemisphere; it is not a vast plain. West Texas is a vast place, though, nearly 32,000 square miles (about the size of South Carolina), and this complex ecosystem is under threat, with restoration extremely difficult to achieve.

In the middle of these two issues (energy and natural resources) are the residents of West Texas who have lived on the land in rural communities for generations. Hundreds of thousands of Texans live in this quiet, majestic part of the Lone Star State.

The region’s new-found energy boom provides both opportunities and risk of impact.

Opportunities vary from increased land value and overall economic activity of the region to direct employment and higher wage jobs. Risks of impact from intense activity varies from increased traffic and resulting road impact and accidents, to infrastructure and other societal impacts typically observed in industrial-heavy urban areas. For many communities in this region—especially those from Pecos and Fort Davis to Odessa—rural daily life has now changed, potentially for generations.

How will increased energy development affect areas south of Fort Davis, from Alpine, Marfa and throughout the Big Bend area? What are the upsides and downsides of energy development, and what intensity of energy development can be expected between now and mid-century? And, better yet, are there collaborative solutions that can mitigate impact, where proper planning can result in sustainable solutions for the protection of communities, landowners, and natural resources?

Sustaining the Economy, Environment, and Quality of Life

We live in an energy intensive society. Quality of life and quality of our communities often depend on access to energy. As the Trans-Pecos continues to be a focal point of energy sprawl, we need to focus on the potential environmental impacts of these activities and how all stakeholders, including industry, landowners, lease holders, environmentalists, business people, policymakers, and community leaders, can work together to manage the confluence of substantial

industrial activity in this rural and fragile part of Texas.

Data, thoughtful analyses, and discussions can help us to achieve this balance. However, even the highest-quality data needs to be placed into the correct context to improve decisions and resulting actions. Communicating data and insights in a way that is understandable to stakeholders and the general public is vital for the scientific community. With the proper collaborative framework, we can succeed by design, achieving significant and lasting change for the overall good.

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Editor's note: The views expressed by contributors to the Cynthia and George Mitchell Foundation's blogging initiative, "Actionable Solutions for a New West Texas" are those of the author and do not necessarily represent the views of the foundation. The foundation works as an engine of change in both policy and practice, supporting high-impact projects at the nexus of environmental protection, social equity, and economic vibrancy. Follow the Mitchell Foundation on Facebook and Twitter, and sign up for regular updates from the foundation.

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