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Where the Wind Blows and Sun Shines:

A Comparative Analysis of State Renewal Energy Standards

By Matthew Slavin, Ph.D.

America's state governments are at the forefront of efforts to expand the nation's supply of renewable energy. Renewable energy standards (RES) comprise the cornerstone of these initiatives. RES is by far the most widely used mechanism by states to expand renewable energy production and consumption. Fully 29 states have adopted some form of a mandatory RES. RES is also in place in the District of Columbia. And Vermont has a goal that so far has been voluntary, but which may become mandatory by 2013.

What follows is an assessment of how different states have structured their RES programs, what similarities they share and what differentiates them. Renewable energy standards are complex instruments and this assessment is not intended to be exhaustive. It focuses on five selected examples of state RES initiatives to highlight key features upon which these programs are founded. States use a number of different names for their RES programs including renewable energy portfolios. For simplicity, all will be referred to as renewable energy standards. A primer on how RES is supposed to work offers a useful point of departure.

How Renewable Energy Standards Work

State RES programs share a basic common thread. They place a mandatory obligation on electric utilities to generate a specified percentage of the electricity they sell to their consumers from renewable energy technologies. The underlying concept is that RES will foster competition, efficiency and innovation to create a market that expands renewable energy generation and drives economies of scale that lower the cost of renewable production such that it is competitive with conventional fossil fuel generation.

RES mandates vary from state to state. Each state has designed its RES to account for a range of state-specific conditions and policy priorities. These include available wind, solar and other renewable energy potential in a state; reducing greenhouse gas emissions and mitigating other environmental externalities associated with fossil fuels; and lowering electricity costs to consumers. Other goals include diversifying the energy mix to protect against potential fuel interruptions and attracting wind and solar farms, product manufacturers and research and development facilities to promote economic development and job creation.

Every state with RES includes pho-

Mandatory Renewable Energy Standards, 2010

Table 1

State	Year*	Goal**	Compliance
Arizona	2006	15% by 2025; distributed 30% of annual requirement	IOUs, co-ops
California	2002	20% by 2010; 33% by 2020	IOUs; munis must self-implement
Colorado	2004	IOUs 30% by 2020; 10% by 2020 for munis/co-ops	IOUs; munis/co-ops w/40k customers
Connecticut	1998	27% by 2020; technology minimums	IOUs, munis
Delaware	2005	20% by 2020	IOUs, munis, co-ops
D.C.	2005	20% by 2020	PEPCO, only serving utility
Hawaii	2001	40% by 2020; up from 205 in 2004	IOUs (Hawaiian Electric)
Illinois	2007	25% by 2025; 75% of requirement from wind	4 IOUs w/+100k customers and CES
Iowa	1983	105 MW	IOUs
Kansas	2009	20% by 2020	IOUs, some co-ops
Maine	1999	40% by 2017; 10% for new resources	All competitive electricity providers
Maryland	2004	20% by 2022; tiered, tier 1 most, tier 2 hydro	IOUs, munis, co-ops
Massachusetts	1997	15 % by 2020, additional 1% per year afterward	IOUs
Michigan	2008	10% by 2015 + for Detroit Edison and Consumers Energy	IOUs, munis, co-ops
Minnesota	2007	30% by 2020 for Xcel; 25% by 2025 for others	IOUs, munis, power districts, co-ops
Missouri	2008	15% by 2021	IOUs
Montana	2005	15% by 2015	IOUs only, others to show good faith
Nevada	1997	25% by 2015; 5-6% of requirement from solar	IOUs
New Hampshire	2007	23.8% by 2025	IOUs, co-ops
New Jersey	1999	22.5% by 2021 includes 5.3 GW solar requirement	IOUs
New Mexico	2007	IOUs 20% by 2020; Co-ops 10% by 2020	IOUs, Co-ops
New York	2004	30% by 2015	IOUs; LIPO and NYPA cooperating
North Carolina	2007	IOUs 12.5% by 2021; 10% by 2018 for munis/co-ops	IOUs, munis, co-ops
Ohio	2009	25% by 2025, includes clean coal and advanced nuclear	IOUs
Oregon	2007	Large utilities 25%, small utilities 5-10% by 2025	IOUs, munis, public districts, co-ops
Pennsylvania	2004	By Tier, 8-10%, includes waste coal and coal gas	IOUs
Rhode Island	2004	16% by 2020	IOU (Narragansett Electric)
Texas	2005	5,880 MW by 2015; 10,000 MW by 2025	IOUs
Vermont***	2005	20% by 2017	All retail utilities
Washington	2006	15% by 2020	IOUs, munis, districts, co-ops 25k cust.
Wisconsin	1999	10% by 2015, varies by utility	IOUs, munis, co-ops

*Year signifies when RES first enacted. This may differ from the year RES went into effect.
**Goal is final year target based upon latest revisions to state RES. Many states include requirement for wholesale suppliers in addition to distribution utilities.
*** Vermont's SPEED program is voluntary. If the Public Service Commission determines in 2012 that utilities are lagging, the requirement becomes mandatory in January 2013

Qualifying Resources:
All States: PV, wind, hydro, biomass, landfill gas, biofuels.
Other resources include anaerobic digestion, fuel cells, geothermal, municipal waste, hydropower, ocean thermal, wave, tidal, solar space, solar thermal, solar water, distributed generation, cogeneration.

Source: U.S. Department of Energy, Database of State Incentives for Renewable Energy (DSIRE) as of April 2, 2010.

No Grid, No Gain:

Untangling the Transmission Tie-up

By Matthew I. Slavin, Sustaingrüp, and Jason J. Zeller, California Public Utilities Commission

Great strides have been made in enacting state renewable energy standards (RES) in the United States, which significantly affect the urgency of developing new renewable energy facilities. Also called Renewable Portfolio Standards and Alternative Energy Portfolio Standards, over 30 states have adopted RES mandates. These initiatives are paving a path toward a more economically and environmentally sustainable and secure energy future for America.

Success to date notwithstanding, one primary hurdle facing renewable developers stems from limitations to the existing transmission grid. Simply put, efforts to integrate renewable generation into the U.S. energy mix have frequently been stymied by the lack of available transmission facilities. For example, the Midwest has been colloquially called the "Saudi Arabia of wind" because of tremendous wind resources in the Great Plains. However, this most windswept region of the nation tends to be overwhelmingly rural and lacks the transmission facilities that would allow wind generated electrons to be transmitted to major urban markets such as Chicago, St. Louis and Kansas City.

Nevada has the highest solar energy potential in the nation. The U.S. Department of Energy calculates that 100 square miles of Nevada land could supply all U.S. electricity needs with current commercial efficiency rates. However as Nevada Economic Development Commission Executive Director Mike Skaggs has noted, development of Nevada's ample solar energy resource is hindered by the fact that a "significant portion of the area feasible for renewable energy generation is not currently connected to adequate transmission technology." Nevada's transmission challenges are not atypical.

How bad is the transmission tie up? A white paper jointly issued by the American Wind Energy Association (AWEA) and the Solar Energy Industries Association (SEAI) estimated that in 2009 up to 300,000 MW of wind projects faced potential deployment delays due to an

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Preparation for electrification of transportation

CURRENTS OF CHANGE

Matt Slavin

It might be a stretch to refer to the electrification of transportation as a holy grail, but only slightly.

The Edison Electric Institute, the electric utility industry's main trade group, calls electrification of transportation (EOT) the industry's biggest opportunity. It's not hard to see why. Bloomberg New Energy Finance projects that by 2040, annual global electricity consumption from electric vehicles could rise 3,000-fold, from six terawatt hours to 1,800 terawatt hours. Market research firm Frost & Sullivan projects electric vehicle (EV) prices will achieve parity with internal combustion vehicle prices by 2025, when 8 percent of new vehicles registered will be electric, up from 1.4 percent now.

The technology sector is on board, seeing EOT as a missing link in creating "Internet of Things" smart city connectivity. Environmentalists see EOT as a key to reducing globally warming fossil fuel emissions. Wall Street insiders are eyeing traditionally stodgy electric utility equities and stocks of makers of transformers and other electric system components needed for EOT as long-term buys.

State governments will play a leading role in forging the EOT ecosystem because their public utility commissions regulate electric utilities that own and operate the electric distribution lines, substations and associated infrastructure upon which EV charging depends. (Investor-owned utilities are regulated by PUCs; publicly-owned utilities are regulated by governing boards of directors usually composed of elected officials.) Some utilities also own nonregulated companies that operate the approximately 16,000 street-level EV charging stations installed throughout the U.S. That number that will grow exponentially.

Optimizing EOT raises a number of issues. These include:

- identifying and quantifying potential benefits and risks EOT presents for electric utilities, their residential, commercial and industrial customers and society in general, including climate resilience;
- identifying the infrastructure investments needed to build out the EOT ecosystem;
- determining how the investment costs should be apportioned between utilities and nonregulated competitors, government and consumers;
- determining whether EOT infrastructure costs should be recovered from ratepayers as a whole or only those who directly use EV charging; and
- discussing how financial and regulatory incentives can be used to accelerate development of the EOT ecosystem, including in underserved urban areas and nonmetropolitan areas that may not see early EV adoption.

In this context, several issues are paramount.

When forging EOT policy, it's important to take a big picture view. Most states are divided into utility service areas, but the biggest gains won't be achieved until seamless connectivity of EOT infrastructure can be established not only within service areas but also between service areas both within states and between states to allow for substantial mobility. A patchwork system in which EVs can be charged in one service area but not in adjoining areas will substantially sub-optimize the benefits that EOT can otherwise bestow.

Next is the need to recognize that optimization of EOT will require massive investments in modernization of electric transmission and distribution grids. They must be strengthened so they can support the substantially higher loads implied by EOT and more seamlessly balance the nation's growing renewable energy generation portfolio. Advanced grid architecture that integrates into the bulk power system, customer-owned distributed energy resources, smart metering systems and storage technology such as battery storage and power to gas technologies will be needed.

Public support needs to be built, and will require effective media awareness campaigns to explain the benefits of EOT. As EVs gain parity with internal combustion vehicles, EOT should be presented as offering consumers new mobility choices with lower lifetime costs and environmental benefits. There's a particular need to emphasize the benefits of EOT for non-adopters – consumers who choose for whatever reason not to buy electric vehicles. Showing how all customers can benefit through lower bills when utility-fixed costs for generation, transmission and distribution are spread across more kilowatt-hours needed for EOT optimization can be a persuasive message.

As with many challenges that lie at the intersection of government and business, forming a task force to make recommendations on EOT policy, regulation, finance and messaging is a good idea. The core of such a task force should be drawn from utilities, automakers, regulatory authorities and other state and local government stakeholders, EOT ecosystem trade allies, and not-for-profit public interest advocates. Involvement should be geographically diverse with the aim of getting broad-based buy-in.

A good place to start is with lessons from states that have established reputations as early adopters. Among these are: Hawaii, Maryland, California, Illinois, Ohio, Minnesota and Washington. The latter has created a $10 million fund to make matching grants to local governments or public and private electrical utilities for piloting approaches to EOT.

At more than $1.4 trillion, transportation ranks only behind health care, housing and food as a major sector contributing to U.S. gross domestic product. It will take years before the full benefits of EOT will be realized, and there's a lot of unpredictability ahead. Those that get early starts in addressing the issues will best position themselves as early beneficiaries of what may be one of history's greatest economic transformations.

Matt Slavin in 2018 founded M.I. Slavin to provide consulting in project management, strategic planning, research and communications. Contact him at 503-619-5601 or matt@mislavin.com.

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Attention turns to geoengineering to address climate change

CURRENTS OF CHANGE

Matt Slavin

Communities relying on beach restoration to fend off erosion due to rising sea levels are facing a crisis. The globe is facing a shortage of sand, The Economist has reported.

After water, sand is the second-most consumed resource globally. With projections that the world will have 43 megacities with more than 10 million inhabitants by 2030, demand for sand to build roads as well as make concrete and glass and other accoutrements of urban life has risen inexorably as the world rapidly urbanizes.

Sand seems like a low-tech solution in a world increasingly likely to look to technology to address climate change. That is the message that came out of a March meeting in Nairobi that considered a proposal to have the U.N. Environmental Programme study geoengineering to combat climate change. The proposal was killed due to opposition by the United States and Saudi Arabia with backing from the hydrocarbons industry.

Pricing carbon emissions and electrification of energy are the two most direct paths to decarbonization. But carbon pricing and electrification may not be enough to forestall overshoot – a 1.5-degree Celsius rise in global average temperature above pre-industrial levels at which point climate change's most catastrophic disruptions would be triggered.

Hence, there is rising interest in geoengineering.

Geoengineering is an umbrella term that involves manipulating the Earth's natural processes to attenuate either the build-up of atmospheric carbon dioxide or its effects. The proposal rejected in March would have had the U.N. Environmental Programme study two approaches: carbon dioxide removal (CDR) and solar radiation management (SRM).

The most technologically mature CDR process is bioenergy with carbon capture and storage (BECCS). It involves burning biomass to generate electricity and scrubbing the resulting emissions to separate carbon and store it underground in large geological formations that can contain the gas for at least a long time if not for eternity. Burning biomass and capturing and storing the emissions produces negative carbon dioxide emissions because the feedstock is sourced from wood and other materials derived from plants that absorb carbon dioxide (Unlike coal-carbon capture and storage, since coal doesn't absorb carbon dioxide).

BECCS has been tested and works. It's also expensive, energy intensive, and practical mainly in areas where there are proximal geologic structures to store the carbon. Scaling up BECCS to deal with overshoot on a global level would take time, and it's unclear if enough land is available to grow enough biomass to enable BWCCS to make a difference.

SRM solutions are based on conceptual models and have yet to be tested in practice. One approach called stratospheric aerosol injection (SAI) would seek to cool the earth's surface by pumping gases into the stratosphere to reflect some of the sun's heat. Simulations suggest it could be effective; however, it would be difficult to scale to global proportions, and doing it in just one country could trigger catastrophic weather events in another.

Another SRM approach, marine cloud brightening (MCB), would involve spraying sea salt into marine clouds to reflect sunlight. Simulations suggest it would work at a regional level, although with the potential for disruptions (albeit more localized than those associated with SAI). A third approach would use chemicals for cirrus cloud thinning (CCT), reducing the clouds' heat trapping effect and allowing more long-wave radiation to escape into space, cooling the earth's surface.

The practicability of geoengineering to remediate climate overshoot remains to be determined. Less uncertain are the catastrophic consequences that failure to effectively tackle climate change portends. Such events are of the sort of floods, hurricanes and wildfires we've seen over the past two years in Puerto Rico, North Carolina, California, Nebraska and throughout the Midwest, and along the Gulf Coast. According to the National Oceanic and Atmospheric Administration – NOAA – the cost of these extreme weather events exceeds $150 billion, not counting the costs of Midwest flooding, yet to be totaled.

A recent CBS poll showed the American people to be awakening to the need to act on climate change. In that poll, 62 percent of people agreed climate change is due to human activity and 79 percent agreed that impacts are serious now or will be in the future. And 59 percent said yes, humanity can do something to stop climate change.

This message has not gotten through to the powers that be in Washington who in March shot down the proposal to study geoengineering. At this point, the stakes are too high to not at least investigate whether geoengineering can be harnessed to help remediate climate overshoot. This message needs to be driven home.

Matt Slavin founded M.I. Slavin to provide consulting in project management, strategic planning, research and communications. Contact him at 503-619-5601 or matt@mislavin.com.

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Maintaining Battery Health with EV Charging Best Practices

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Electric vehicles (EVs), whether they are new or used, are typically long-term investments made with the intention of driving and enjoying the car for several years. How you choose to care for and maintain that investment will significantly impact the lifetime cost, experience, and overall value of your vehicle.

One of the most significant expenses in an EV, accounting for nearly one-quarter of the cost of an EV, is the battery. Certain habits can cause battery degradation to occur, which will ultimately decrease its lifespan.

To ensure your vehicle's battery longevity and receive the most value from your EV long-term, you'll want to be familiar with EV battery charging best practices.

Take Advantage of EV Battery Charging Best Practices

The following factors comprise essential elements of EV charging best practices that will help optimize your battery's performance and efficiency, as well as prolong its life. We discuss each of these in more detail below.

- Slow charging versus fast charging.
- Minimum and maximum battery charge.
- Driving habits.
- Climate conditions.

Slow Charging vs. Fast Charging

EV battery charging best practices are essential to learn and implement, particularly regarding the tradeoffs between fast and slow charging. When it comes to EV charging, there are three levels of charging to consider: Level 1 Charging, Level 2 Charging, and Level 3 Charging, also referred to as DC Fast Charging (DCFC).

- **Level 1 EV charging** utilizes a 120V AC outlet and is easily accessible for a majority of drivers, as this type of outlet is a standard outlet in any home, multifamily, or commercial building outfitted with electricity. While this type of outlet is convenient to access at home or on the go, it charges at very slow rates due to the low output in voltage. You can expect a Level 1 charger to take approximately 18-30 hours to charge, depending on the make and model of the electric vehicle.
- **Level 2 EV charging stations** are a preferred method of charging for many people as they take between 6-10 hours to fully charge, depending on the make and model of the electric vehicle as well as the EV charger, and can conveniently offer a full charge overnight. These units run on 240V AC power and require a certified electrician to install the appropriate hardware and wiring, as well as make any needed panel upgrades depending on the current available capacity and EV charger needs.
- **Level 3 EV charging stations, or Direct Current Fast Chargers (DCFC)** are a commercial-grade method of charging as they require 480V DC power and are significantly more expensive to purchase and install. Commonly found in grocery stores, malls, and other quick stops, these charges offer high-powered, rapid-charging speeds and boast a full charge often in 30 minutes to 1 hour. They are the only charging method to utilize DC, or direct current, energy. Using DC allows these chargers to directly power the vehicle battery, whereas Levels 1 and Level 2 EV chargers must convert AC to DC within the vehicle, slowing down the charge time of a vehicle. While Level 3 charging stations provide the fastest battery charge, consistent use of Level 3 charging has been shown to increase battery degradation for electric vehicles, thereby reducing the vehicle's range.

Minimum and Maximum Battery Charge

Lithium-ion batteries work better when they are used and charged in partial cycles, in other words, not completely depleted or fully charged.

Consequently, the best charging practice is to charge the battery at different stages, optimally keeping its level between 20% and 80%. Similarly to how the overuse of fast charging stations can decrease battery life, so can consistently allowing your battery to drain to 0% or continually recharging the battery to 100% when it's not needed.

One way to keep your battery charging in the optimal range is to utilize a smart panel or smart charger to maintain charging within a certain range. Some EVs may also come with these limits established as a baseline setting for charging capacity. Another benefit to keeping your battery charge at no higher than 80% is that it leaves the capability to generate and store energy through regenerative braking.

Consistently having a fully charged or fully drained battery can affect its life, particularly during long-term storage when the vehicle sits with the battery at extremely high or low levels for extended periods of time. Follow these best practices to avoid the severe battery damage that can occur when your EV is not used for prolonged periods.

Most batteries are designed to last a minimum of 200,000 miles or more, so battery damage or extended use will not always require battery replacement. Depending on the situation and extent of damages, a repair may be possible to bring your battery

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I am lead content strategist and blog writer for several companies.

Top Multifamily Trends of 2023 and What They Mean to You

January 6, 2023 - 3 MIN. READ

Multifamily trends in 2023 will embrace flexibility, improved technologies, and amenities, as well as biophilia, and a focus on mental health and well-being. Incorporating these trends into maintenance, remodeling projects, and new construction will position property managers and owners for success in the coming year.

The Roots of the Multifamily Resurgence

COVID's rapid spread in 2020 and 2021 saw tens of thousands move into multifamily properties in suburban areas. As a result, the demand for multifamily living was boosted to record levels. According to Costar, rental rates surged throughout 2021 and 2022 to all-time highs.

Several factors have moderated the multifamily market since peaking in the 2nd quarter of 2022. These include large deliveries of newly constructed multifamily units in 2021 and 2022, rising inflation rates, recession-related fears, and soaring rental rates. However, Fannie Mae sees a resilient rental property market in 2023, with rents rising but more modestly. Moreover, CBRE reports that the multifamily market is entering a normalizing period more akin to the pre-pandemic period than the past couple of years.

What Is the Business Case for Sustainability?

By Vitality IO January 3, 2023 9:00 am

What is the business case for sustainability? As the world faces mounting environmental and social challenges, businesses are beginning to recognize that sustainable practices can help them stay competitive while creating positive impacts on society and the environment.

Developing a strong business case for sustainability involves assessing risks, understanding customer needs, and investing in innovative solutions that create value over time.

In this blog post, we will explore what is the business case for sustainability, how to develop an effective strategy, how to implement your plan, and how to measure the success of your efforts. Ultimately, the goal is to show that incorporating sustainable practices into core operations provides both financial returns and societal benefits – making it not only ethical but also profitable!

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Thought Leadership: I have been a contributing editor to REW for more than a decade

Run for the money: The case for climate stress testing of banks

BY MATTHEW SLAVIN | 1.12.21

RENEWABLE ENERGY WORLD

Asked why he robbed banks, the infamous bank robber Willy Sutton is reputed to have said "Because that's where the money is." Advocates of meaningful action on climate change should take note. It's time to mandate climate stress testing for the nation's largest banks.

Forward leaning states and cities have enacted a spectrum of clean energy mandates, incentives, green building codes, emission caps. Some like in California are far-reaching. But as the scholars William Travis, Thomas Wilbanks, and the late Robert Kates recognized a decade ago in the *Proceedings of the National Academy of Sciences*, many of these measures have limited reach, are intermittent, and incremental. What's needed is a transformative change, a revamping of underlying assumptions, rules, governance, and costs so that traditional modus operandi are fundamentally and systemically altered for the long-term fight against anthropogenic global warming.

NOAA's National Centers for Environmental Information estimates that severe weather events in 2019 due at least in part to climate change resulted in $45 billion in losses to U.S property, crops, and infrastructure. It's an underestimate, including only the 14 most severe fires, floods, and hurricanes each causing at least $1 billion in damages. Public health costs are excluded. NOAA estimates losses at least partly attributable to climate change have reached at least $1.7 trillion since 1980. When you talk about losses this big, the money center banks supervised by the Federal Reserve need to be part of the conversation.

The Fed has now taken a step toward climate change stress testing of big U.S. banks. In late November, Fed Vice Chair for Supervision Randal Quarles told the Senate Committee on Banking, Housing, and Urban Affairs that the Fed had asked to join NGFS, the Network for Greening the Financial System. NGFS is a consortium of central banks and regulatory agencies organized to address climate change through financial practices. The Fed's move followed acknowledgement in November of climate change as a systemic risk to the nation's financial system in its semi-annual stability report, for the first time. Fed Governor Lael Brainard has championed testing the relationship between climate change and financial risk.

Still, the Fed's approach has been cautious. The central bank has not yet imposed climate stress testing for the banks it supervises in the face of methodological and political challenges. Nonetheless, on December 7, by a 6-0 vote by the Board of Governors, the Fed joined NGFS.

Dr. Matthew Slavin consults on climate resilience, decarbonization of energy and transportation, and sustainable economic development and infrastructure following a career in industry and government in Washington D.C. and the Pacific Northwest. Contact Matt at matt@mslavin.com.

How it Would Work

The underlying architecture for climate stress testing exists in the macroeconomic stress testing the Fed already requires of the big banks. Macro stress testing emerged from the Great Recession as a way to evaluate bank and financial sector resilience in the face of external shocks to the financial system. Measures of climate and financial performance would generate threshold scores for climate risk, both for individual banks and the financial system as a whole. These scores would be used to drive policy. For example, risk tranches could offer more favorable terms for loans and investments in no- and low-carbon and methane fuels, technologies, and products.

Challenges

Climate stress testing is subject to concerns about methodology, on the grounds that insufficient data exists for correlating climate variables and financial performance over a long 30- to 50-year time horizon implicit to climate change (versus nine quarters used in macro stress testing), imposing too much variability and making climate stress test results unreliable. Critics point to a lack of data needed to establish correlations between climate and GDP, interest rates, and prices, for example.

Some past data useful for correlating these variables can probably be accumulated with a dedicated effort. More to the point is the framework NGFS set out in its June 2020 publication Guide to Climate Scenario Analysis for Central Banks and Supervisors. This unprecedented document acknowledges "The forward-looking nature of climate risks and the inherent uncertainty about future events make it difficult to assess them using standard risk modeling methodologies." In response, the guide offers various scenarios for climate stress testing with advice for using scenario analysis. The scenarios will of course be more closely specified over time as more data is collected. Just because climatological stress testing hasn't been done before is no excuse to not start now, given the grave threat posed by the climate crisis.

Political opposition was expressed in a letter issued on behalf of 47 House Republicans on December 9. After reiterating the above methodological points, the letter asserted that climate stress testing could "accelerate the ill-advised pattern of "de-banking" legally operating businesses in industries, such as coal and oil and gas."

Well, that's not much of an argument, as hydrocarbon consumption is by far the biggest driver of the climate crisis and the goal is to get off coal, oil, and gas. Duke, Southern, and TVA plan to build as many as two dozen gas plants. Climate stress testing might make investing in these types of facilities riskier and costlier, thus capturing externalized risk from oil and gas and encouraging investment in decarbonizing renewables, electrification, and storage. Europe has already started down this path.

The Time Is Now

Public support for concerted action to fight climate change is at its highest level ever. Pew Research reported in late November that 67 percent of Americans said the federal government was not doing enough to reduce the effects of global climate change. President-elect Biden has pledged to rejoin the Paris accord on day 1 and to spend $2 Trillion on a nation-wide campaign to fight climate change and create greener jobs, almost 20 times what was spent on clean energy under the 2009 American Recovery and Reinvestment Act. Recognizing the threat climate change poses to U.S. national security, Biden plans to appoint former Secretary of State John Kerry and former EPA Administrator Gina McCarthy as climate czars in the battle to reduce global warming. These proposed appointments are a good first step, but more difficult challenges await in the battle against climate change.

The hard part is catalyzing the transformative change needed to mitigate and reverse global warming while ensuring economic growth. To date, most policies targeting climate change have been largely transactional, intermittent, and incremental. Carbon pricing remains a nascent enterprise subject to political vicissitudes and not ready for prime time as parties parochially maneuver to protect their sectoral interests.

Equity issues are involved. Thoughtful green economy agendas driven in part by climate stress testing can address these. But the Fed is by and large insulated from politics. Done right, climate stress testing of the big banks can help transform the foundations of risk and reward and steer us to a healthier climate founded on sustainable economics. So, let's get on with it.

YOUR TURN

I've written and placed many op-eds, dating 1990 - present.

Reno can lead climate change fight

BY MATTHEW I. SLAVIN

According to the recently released report by the U.S. Global Change Research Program, global warming will lower the precipitation upon which Reno depends for its water supply by between 10 percent and 25 percent. With an extreme drought score of 127 by DroughtScore.com and several years of dry conditions, the world's biggest little city has a taste of what this future might look like.

Fortunately, Reno has an opportunity to do its part to combat global warming and, in the process, conserve water, restrain electricity rate increases and recast itself as a center of eco-tourism.

Patagonia's 171,000-square-foot addition to its Reno distribution center points to one path forward. It is built to LEED standards. LEED, Leadership in Energy and Environmental Design, is the dominant certification for green-building construction in the U.S. Plumbing fixture and process water consumption in LEED buildings is at least 30 percent less than in buildings built with conventional construction methods.

On the energy side, commercial office, hotel, retail and apartment buildings use one-third of electricity consumption in the U.S. According to the U.S. Green Building Council, LEED can reduce buildings' energy consumption by up to 50 percent, no small concern in Reno, faced with rising electricity bills. Not coincidentally, the World Business Council for Sustainable Development said LEED can reduce green house gas emissions by up to 70 percent.

LEED ranks both new and existing buildings according to four ascending levels of sustainability: certified, silver, gold and platinum.

Patagonia's building qualified for gold, and it was joined recently by the LEED silver University of Nevada, Reno's Marguerite Wattis Peterson Athletic Center. LEED building could be accelerated by adopting a fee-bate system similar to that under consideration in Portland, Ore., under which buildings that exceed certain LEED standards would receive a rebate on their building permit fees.

With prodigious sunshine, Reno also could follow Honolulu. By 2010, all newly constructed homes will need to have rooftop thermal solar panels installed. The water these heat helps reduce the need for costly new coal and gas generating plants. Taking this to the next level, existing homes could be required to install thermal solar panels when they are sold, since preexisting homes will continue to account for the overwhelming majority of Reno's building stock for many years to come.

Much more can still be done, including forging a sustainability partnership that couples LEED updated gaming houses in Reno with Tahoe's recreation industry, which takes climate change very seriously: Rising temperatures mean less snow and fewer days of skiing. By moving down the sustainability path, Reno can combat global warming, restrain the need for future electricity rate increases, conserve water, and with Lake Tahoe, position itself as a "green diamond," to fly as a center of eco-tourism and help avoid a future in which climate change threats leave the city high and dry.

Matt Slavin is a sustainability and clean-energy consultant based in Portland, Ore.

COMING UP

FRIDAY: Columnist Richard Cohen writes that the emergency room is the great leveler of American life: Everyone gets miserable treatment.

CNG / LNG

NGV TODAY

YOUR SOURCE FOR NATURAL GAS VEHICLE MARKETS, TECHNOLOGY AND POLICY

MARCH 04, 2015

IN THIS ISSUE

LEADING NEWS

LNG tax equalization bill approved by Senate Finance Committee

The U.S. Senate Finance Committee has approved S 344, a measure designed to eliminate the federal excise tax penalty imposed on LNG when sold as a transportation fuel in the U.S. Sponsored by Sens. Michael Bennet (D-Colo.) and Richard Burr (R-N.C.), the measure is modeled on a companion bill introduced in the House of Representatives by Reps. Mac Thornberry (R-Texas) and Rep. John Larsen (D-Connecticut), HR 905, the *LNG Excise Tax Equalization Act of 2015.*

Federal Excise Tax on NatGas and Petroleum Fuels		
	Now	With Change
LNG/DGE	$0.413	$0.243
Diesel/Gal	$0.243	$0.243
CNG/GGE	$0.183	$0.183
Gasoline/Gal	$0.183	$0.183

Currently, the federal government taxes LNG based on the volume of fuel sold, measured in gallons. The federal excise tax on diesel is also assessed volumetrically. Both fuels are taxed by the federal government at a rate of 24.3 cents per gallon sold. But because LNG has lower energy content than diesel – It takes 1.7 gallons of LNG to produce the same amount of energy as a gallon of diesel fuel – current federal law results in a gallon of LNG being taxed at an effective rate 70 percent higher than that at which a gallon of diesel is taxed.

Enacted into law, S 344 and/or HR 2202 would revise the federal excise tax on LNG so that it is levied on the basis of LNG's energy content, at a rate of 24.3 cents per energy equivalent of a gallon of diesel, equalizing the excise tax on LNG with that of diesel. Federal law already taxes CNG on an energy content basis, at a rate of 18.3 cents per the energy equivalent of a gallon of gasoline. So the bills would also harmonize the way the federal government taxes LNG with the way it taxes CNG, in terms of energy equivalency.

(continued on Page 2)

Texas NGV incentives generate almost $500 million in economic output, support 3,000 jobs by 2018

The growing number of NatGas fueling stations being built is allowing the industry to get a better hand on the economic impacts of deploying NGVs, developing NGV infrastructure, and the incentives that state governments offer to help underwrite NatGas fueling station development and fleet deployments of NGVs.

A case in point is a study recently completed by the Institute for Economic Development at the University of Texas at San Antonio (UTSA). The study examined the economic impact of fleet deployment and NatGas fueling station incentives offered under three programs administered by the Texas Department of Environmental Quality (TCEQ). The Institute concluded that $52.9 million in grants awarded by the three TCEQ incentive programs generated $79.1 million in gross state products and supported 927 full-time jobs in Texas in 2014. According to the analysis, the incentive programs are generating significantly rising economic and job impacts on a year-over-year basis (see table page 2).

The three TCEQ incentive programs are the Clean Transportation Triangle (CTT) Pro

(continued on Page 2)

Matthew Slavin, PhD.

Portfolio

- Strategic Planning
- Regulatory & Compliance
- Deep Dive Research Studies & Surveys

matt@mislavin.com

mislavin.com

Smart Grid Report

June 2019

I was contracted to research and write this 90-page regulatory filing, inventorying, and benchmarking 60 PGE programs, offerings, technologies and incentives, working with 25 professionals at PGE including the executive committee

Tables and Figures

Next steps: PGE will continue limited, strategic deployment of voltage disturbance detection devices. Additionally, PGE will evaluate additional ways how to leverage voltage reports such as enhancing asset monitoring capabilities.

6.4. Transportation Electrification

6.4(a) I-5 Charging Initiative

In October 2018, PGE entered into a collaboration agreement with ten electric utilities on the west coast to evaluate opportunities and challenges for medium and heavy-duty transit along the I-5 corridor from Mexico to Canada. The study has five main components:

- **Zero-Emission Medium- and Heavy-Duty Truck Current Market and Needs Assessment:** evaluation of current and forthcoming vehicle & charging options, market needs assessment (regulatory, financial, and technological), and industry disruptions;
- **Current Trucking Market Landscape and Use Cases:** review of existing trucking patterns along i5, including duty cycles, vehicle use cases, major sectors, key market players, typical fleet characteristics, tonnage of cargo moved, etc.
- **Coordinated Assessment of Current Utility Infrastructure:** evaluation of the major transmission and distribution assets (e.g., substations) that are likely to be affected by the mass deployment of zero emission trucking infrastructure
- **Zero Emission Solutions and Recommendation:** identification of priority deployment locations of charging trucking charging infrastructure, T&D system upgrades, etc.
- **Utility Recommendations** on where and how to accelerate deployments of zero emission trucking deployments along the i5 corridor.

By collaborating with 10 other utilities, we will get more value than we could get alone, limit our costs, and create a core team for future inter utility collaboration. Though the study will cost approximately $500,000, by partnering with other utilities, PGE's share will not exceed $27,000.

HDR has been selected to conduct the study (in partnership with CALSTART, S Curve Strategies, and Ross Strategic). They study will be completed by EOY.

Collaborating Utilities:

- Los Angeles Department of Water & Power
- Northern California Power Agency
- Pacific Gas and Electric Company
- Pacific Power
- Portland General Electric
- Puget Sound Energy
- Sacramento Municipal Utility District
- San Diego Gas & Electric Company
- Seattle City Light
- Southern California Edison Company ("SCE")
- Southern California Public Power Authority

The Innova Heat Pump Demonstration Project:

Decarbonizing Affordable Multi-Family Housing

3002024715
October 2022

P204: Advanced Buildings and Communities

EPRI

Project Summary

In conjunction with LINC Housing (LINC) and Pacific Gas and Electric Company (PGE), the Electric Power Research Institute (EPRI) retrofitted low-income multifamily housing (LIMF) apartments at the 60-unit Pleasant View affordable housing community in Fresno, California. The retrofits around installing 120V monobloc heat pumps made by Italy's Innova Energy to decarbonize these LIMF and reduce the share of LIMF residents' income paid for household utility bills as energy burden and energy costs incurred by the owners of the Pleasant View property.

Specific goals were to explore the project's:

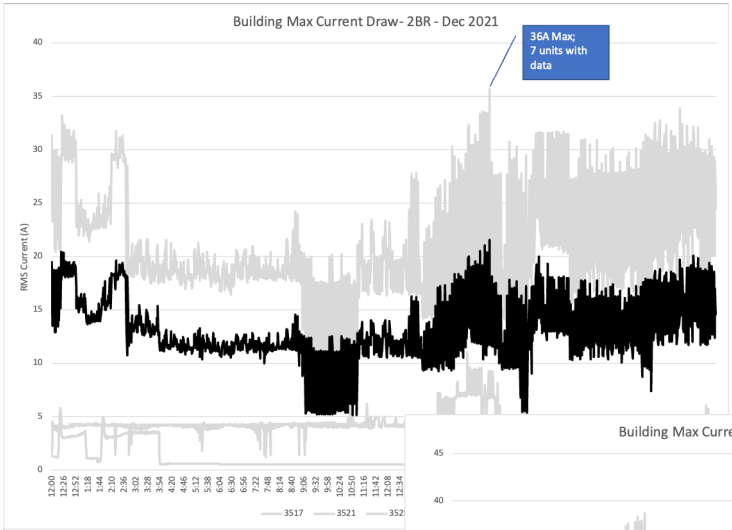
- Technical and economic feasibility
- Barriers encountered during implementation
- Lessons learned from retrofitting the heat pumps; and
- Recommended next needed steps for retrofitting these heat pumps into existing LIMF housing,

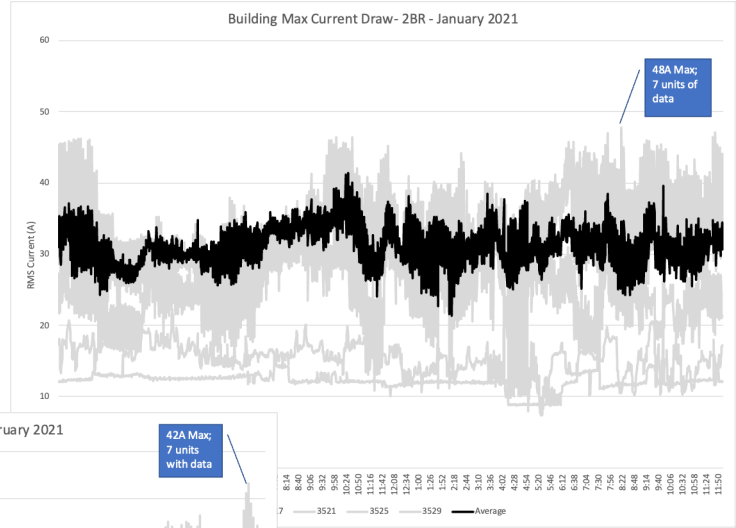
Why This Matters

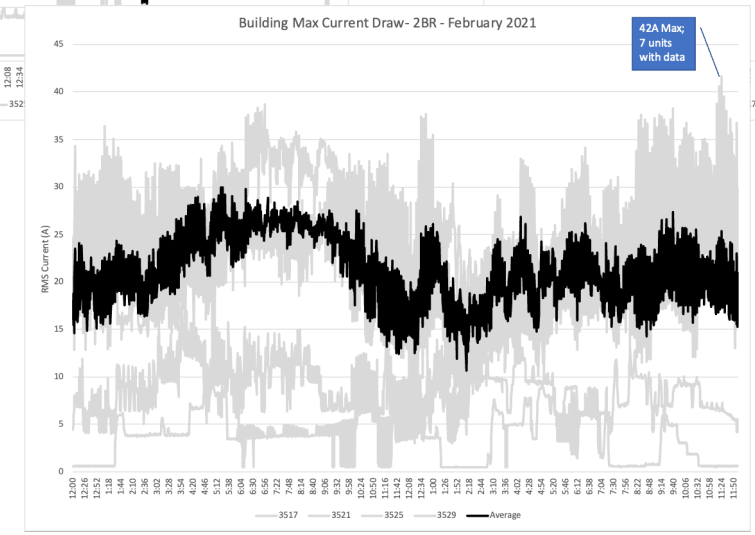
A key driver of this project is recognition of the need for a new approach to adoption of emerging technologies needed to mitigate climate change. Traditional market approaches to adopting new energy technologies like those needed to decarbonize have historically left residents of low-income multifamily housing (LIMF) behind. Pursuing traditional approaches that focus on early adoption of new technologies by high income households to create economies of scale that drive down the price of new energy technologies may lead higher income households to abandon natural gas as a home fuel and raise the energy burden upon low-income households, which is already more than twice the energy median energy burden of city residents. Thus, the need for a new approach.

Research Question: Are multiple Innova heat pumps per unit a significant of concern regarding building's electrical capacity?

Winter Innova Performance – Current Draw at the Building Level







- Max current draw with multiple Innova units averages out ~ 6A per unit
- At a max of ~ 6A, the use of 2nd unit is not likely to cause breakers to trip unless there are other high current loads on the same circuit.

LESSONS LEARNED

- Organize: At the outset of decarbonization retrofits, organize community meetings to discuss initial project plans and learn about residents' energy-related challenges and quality-of-life issues. Community feedback should drive decisions on the technologies to be deployed. Utilities can partner with community-based organizations to arrange meetings with residents.

- Manage: Utilities can position themselves as "trusted energy partner" for communities by managing the selection of technologies and contractors, incentive programs, and operations and maintenance.

- Finance: Utilities alone and in conjunction with state and local governments can develop innovative incentives and financing programs to enable decarbonizing retrofits of LIMF. These include on-bill financing and the energy as a service model, in which the utility deploys and owns building upgrades and community solar systems, and customers pay for the service provided by the equipment (such as heating) vis a recurring fee.

- Develop Workforce: Utilities can engage with community-based labor and workforce development organizations to determine how projects can support job training for residents. The aim is to connect residents of low-income communities with long-term career vocational opportunities in electrification, energy efficiency, and renewable energy.

- Digital Divide: Utilities are deploying digital infrastructure and communications networks on their grids. They can build on the initiatives to provide low-income communities with internet service and connection to appliances and devices such as smart thermostats and other grid interactive devices and smartphones. Such initiatives could offer an overall improvement in the quality of life for LIMF households. Regulatory approval may be required in some cases.

La Junta Solar I

108MW-DC/80MW-AC

4-Hour 20MW BESS

I managed writing of this winning proposal to build a $110 million utility scale solar farm in New Mexico

Tri-State Generation and Transmission Association, Inc.| Capacity and Energy Supply RFP

KORSAIL ENERGY

1415 Park Ave W Denver, CO 80205

(720) 310-8834

info@korsail.com

CLEAN ENERGY SOLUTIONS

Development | Installation | Financing | Operation

Korsail develops innovative, community-oriented renewable energy projects from start to finish. We rely on our deep industry knowledge and experience to create best in class projects that provide carbon-free energy to utilities, corporations, and communities across the country.

TABLE OF CONTENTS

SECTION 1: EXECUTIVE SUMMARY

Korsail Energy, LLC ("**Korsail**") is pleased to present the project, La Junta I LLC ("**La Junta I**") to Tri-State Generation and Transmission Association, Inc ("**Tri-State**").

The La Junta I is a 108MW-DC/80MW-AC PV solar project in Otero County, Colorado in the Black Hills Energy utility territory (the "**Project**"). This project includes a 20MW/80MWh BESS using a 4-hour lithium-ion battery.

We are proud to present Tri-State with three Solar+ BESS contract options in this bid response to Tri-State's 2022 Capacity and Energy Supply Request for Proposals (the "**RFP**").

Under Option A, is a solar plus storage system described below, for which we propose a PPA price of **$44.15/MWh** fixed for **20 years** for the delivery of clean energy, capacity, ancillary services, and environmental attributes, generated by the Project, to Tri-State. Additionally, the BESS will have a response time of one minute at its full rated capacity, a discharge duration of four hours, and cycle rate of 1 cycle/day.

Under Option B, is a solar plus storage system described below, for which we propose a PPA price of **$38.26/MWh** fixed for **15 years** for the delivery of clean energy, capacity, ancillary services, and environmental attributes, generated by the Project, to Tri-State.

Under Option C, is a solar only system described below, for which we propose a PPA price of **$30.95/MWh** fixed for **15 years** for the delivery of clean energy generated by the La Junta I, to Tri-State. Under Option C, Herard retains ownership of renewable energy credits, capacity, and other attributes beside the energy.

Available Option	La Junta I
Option A – Solar + BESS	$44.15/MWh - 20 Years - All Attributes
Option B – Solar + BESS	$38.26/MWh - 15 years - All Attributes
Option C – Solar Only	$30.95/MWh - 15 years - Energy Only

We are excited to introduce you to Korsail, and the opportunity to deliver safe, reliable, and clean energy to your Tri-State customers.

This La Junta I Project Book will detail our development experience, the Project's technical specifications, demonstration of the Project's site control, project permitting, project interconnection, and the Project's estimated milestone schedule.

I was a subconsultant in preparing this mid-2020 CSR update for Capital One Bank. I had principal responsible for sections on Housing, Energy and Renewables, Green Building, and Transportation and other sections more generally. 150 pages.

THE POWER OF PERSISTENCE

CORPORATE SOCIAL RESPONSIBILITY REPORT

2019 - 2020

Capital One®

Supporting Renewable Energy

Employing renewable energy is a critical tool in the fight against climate change. Capital One has been a member of the Environmental Protection Agency (EPA) Green Power Partnership since 2010. Beginning in 2017, we committed to 100% renewable energy and achieved our goal through the purchase of renewable energy certificates (RECs). In 2019, we retired 375,000 RECs to meet 100% of our electrical consumption.

In addition to RECs, we are working to secure additional methods of energy conservation within our portfolio, including on-site renewable generation. In 2018, our first on-site solar project was installed at a new location in Richmond, Virginia.

Renewable Energy Finance

$8.5 billion invested

Since 2015, Capital One has invested over **$8.5 billion in environmentally responsible projects** through our renewable energy, multifamily green financing and not-for-profit banking businesses.

1,200 megawatts

Capital One's Commercial Bank renewable energy investments team has invested over half a billion dollars to finance over **1,200 megawatts of solar and wind projects** since 2015.

$7.9 billion financed

Capital One has financed more than **$7.9 billion in environmentally sustainable multifamily housing projects** since 2016.

Reducing Our Environmental Impact

At Capital One, we recognize the global effects of climate change and are committed to leading by example. We take the long view in everything we do and seek effective new ways to lessen our environmental impact and improve the efficiency of our operations.

Capital One's Environmental Sustainability Office (ESO), internally branded as "Green Solutions," manages our environmental strategy and policies. The ESO also partners with suppliers and vendors to understand the environmental footprint of our business and supply chain and limit the environmental impact of our operations.

Because putting people first is core to our culture, the ESO's work is done in conjunction with committed Capital One associates from all levels and lines of business, who champion environmental stewardship in their workplaces and communities. Many of these associates have formed Green Teams across our offices, branches and Cafés. These volunteer-led environmental sustainability teams take ownership of how local initiatives can contribute to our community environmental stewardship. We are also committed to working collaboratively with our partners and in our communities to reduce our environmental impact and make a positive difference for our planet.

GRI: 103-2, 103-3

U.S. Cities Need a New Vision for Affordable Housing—And Business Can Help

This piece originally appeared on Triple Pundit

By the end of July 2020, nearly 1.2 million people filed first-time claims for jobless benefits since economic activity slowed as the COVID-19 pandemic became more widespread. They join roughly 30 million other Americans receiving some form of unemployment benefits. The figure includes people "on regular state jobless benefits, plus freelancers, gig workers and people unemployed because of COVID-19 who are getting federal pandemic benefits," Marketplace reports. While the number of cost-burdened renters reaches near record highs and the supply of low-cost rentals dips to all-time lows, the need for affordable housing is more urgent than ever.

Governments grappling with the housing gap recognize the massive scope of this problem, often leaning on private companies to fund developments and increase the housing supply for low-income earners. Investing $13.2 billion in affordable housing since 2007, few companies have solidified their commitment more than Capital One.

"It's absolutely critical that we all play a part in it—private companies, governments, as well as the philanthropic sector," says Desiree Francis, Managing Vice President & Head of Community Finance at Capital One. "We're all part of the same community and want to see our neighbors thrive."

Capital One's Community Finance team, comprising investment and banking specialists, partners directly with housing organizations to provide more than $1.6 billion in 2019 alone to both build new affordable housing developments and enhance existing units and communities, creating 13,900 affordable places to live and about 15,700 jobs.

Demand For Affordable Housing "Far Outstrips Supply"

The company has reinforced its commitment to improving access to affordable housing at a critical time. According to the 2019 State of the Nation's Housing report from Harvard University's Joint Center for Housing Studies, rental vacancy rates for affordable properties fell to 4.8% last year, an indicator that housing options for low-income renters remain thin. Despite the dwindling availability of inexpensive rentals—

from 2011 to 2017, the stock for units rented at under $800 shrunk by 17%—new construction is failing to address this need. The Survey of Market Absorption reported that under 4% of unsubsidized multifamily buildings finished in the first quarter of 2018 rented units for less than $850.

"Demand far outstrips the supply," Francis says. "Affordable housing developments in general—and [especially] in high-cost markets—tend to be fully occupied."

Securing a low-cost or subsidized unit, particularly in high-need city markets like New York or Washington, D.C., can feel like winning the lottery, Francis says. But she and her team also recognize that their job isn't over when residents turn the key to their new homes. Capital One has doubled down on its commitment to serve low-income renters, extending its investments well beyond construction through its Social Purpose program, as seen in places like Miami-Dade County's Karis Village affordable housing complex.

A Holistic Approach To Affordable Housing

Perched just south of the Miami Zoo in South Florida, Karis Village opened its doors to 135 low-income and formerly homeless residents in March 2018, thanks in large part to an $8 million construction loan and $25 million in Low-Income Housing Tax Credits purchased by Capital One. This particular development, aligning with another one of Capital One's core Missions, allots about half of its 88 units to at-risk veterans transitioning out of homelessness.

Continued on next page

SUSTAIN ABILITY DC

Building Energy Performance Standard Task Force Advisory Group Meeting

May 5, 2013

I facilitated meetings, researched and wrote documents for this task force developing incentives to increase investment in energy efficiency for commercial buildings in Washington D.C.

Matthew Slavin Consulting
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Washington D.C. 20032
202-625-2325
matt@mislavin.com

Key takeaways from last meeting

- A viable BEPS requires the following:
  - High level of data quality
  - Viable benchmarking methodology
  - Phased implementation
- Incentives:
  - Simplicity is key
  - Some preference for prescriptive incentives
  - Performance based incentives are needed to drive deeper improvements
  - Reaching owner at right time is critical

The Turning Point:

Need to Know Handbook for Procuring, Fueling and Maintaining Compressed Natural Gas Bus Fleets

TRILLIUM CNG | MAKING CNG WORK FOR YOU

Matthew I. Slavin, PhD.

Grant Writing & Proposals

- I research and write winning grant applications. They don't show up well visually, and here are some recent grants I've been writing:

- Led team writing a $180 million grant application for US DOE GRIP resiliency funding to upgrade and decarbonize 80 miles of underground transmission cable for a 3.5 GW load electrical utility.
- $12.5 million in Bureau of Reclamation WaterSMART Grants
- $2 million in USDOT SMART Intelligent Transportation (ITS) Grant
- $1.2 million Michigan advanced EV manufacturing grant
- $7 million to equip start-up limate-tech technology business incubator.

Response to Tropicana Field Request for Proposal

Due: Tuesday, March 18, 2008, 10:00am

I oversaw this proposal to redevelop the 80-acre Tropicana Dome in St. Petersburg into a $1.2 billion sustainable mixed-use urban-plex. We won a hard fought competition against natiuonal heavy-weight developers.

ECOVERDE

AN INTOWN NEIGHBORHOOD WHERE EVERY ASPECT OF LIFE OCCURS

Submitted to:

Economic Development Department
City of St. Petersburg
Municipal Services Building
One 4th Street North, 9th Floor
St. Petersburg, FL 33701

Submitted by:

Mr. Gary F. Colton
Director, Mixed-Use Development East
Archstone-Madison
2345 Crystal Drive, Suite 1100
Arlington, VA 22202
(703) 769-1347

Matt I. Slavin, PhD.

Portfolio

- Sustainable Properties
- I spent the first half of my career in commercial, industrial and residential property development, including almost ten years specialized on sustainable properties.

matt@mislavin.com

mislavin.com

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WASHINGTON BUSINESS JOURNAL

August 12-18, 2005 washington.bizjournals.com $2.25

D.C. area's biggest leasing brokerages

CB Richard Ellis tops the list of largest leasing brokerages.
Page 30

TOP STORIES

ECONOMIC DEVELOPMENT

Skyline stretch

KSI Services pitches tall buildings, lots of retail — and a major change to Springfield's skyline.
Page 6

REAL ESTATE

Leaving Homer?

Jenner & Block looks

ECONOMIC DEVELOPMENT

KSI pitches new Springfield skyline

By Joe Coombs
Staff Reporter

KSI Services has a high-rise vision for the juncture of interstates 95 and 395, and the Vienna-based developer hopes Fairfax County shares the view.

KSI wants to tear down the Springfield Tower office building and several other commercial properties, then replace them with a trio of 23-story residential buildings, 100,000 square feet of retail space, 40,000 square feet of office space and a 10-story, full-service hotel.

The company is not releasing cost figures associated with the project, which would create a new skyline for Springfield.

"This captures the essential ingredients of a mixed-use community," says Matt Slavin, director of project planning for KSI (www.ketsco.com). "Our intent is to break ground as early as possible."

Also on KSI's 9-acre site: a Bob Evans Restaurant, a Vietnamese restaurant, a beverage/wine store and a Marriott hotel.

Slavin would not comment on the relocation of those businesses as part of KSI's project, which is just west of Interstate 95 and bounded on the north by Commerce Street and on the south by Route 644.

The company has approval from Fairfax County (www.co.fairfax.va.us) to rezone the property but is still waiting on a hearing date from the county's planning commission.

COURTESY

MIXING IT UP: Midtown Springfield, as KSI Services is calling its project, would bring commercial space and three 23-story residential towers to Fairfax County.

Depending on when the county signs off on the project, called Midtown Springfield,

KSI would start demolition and build the property over a three-year period, Slavin says.

Midtown Springfield would have 800 market-rate condominiums spread among the three towers and on a pair of floors above the ground-floor retail buildings.

KSI hopes to duplicate the "town center" atmosphere created at such places as Pentagon City and Bethesda Row, Slavin says.

The project could make it easier to draw companies and office tenants to the Springfield area, says Jerry Gordon, president of the Fairfax County Economic Development Authority.

"When we go out to market that area, this will make it more attractive," Gordon says. "It gives it notoriety."

E-MAIL: JCOOMBS@BIZJOURNALS.COM PHONE: 703/816-0306

REAL ESTATE

Jenner & explore lease o

By Tim
Staff

Law firm Jenner
search for 100,000 sq
which it may or may

The firm still has
current lease in the
13th St. NW, but like
city it's looking at al
looking is good.

Several growing
— including White &
Manges; and Alston
sublease their space a
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location.

Jenner & Block
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doesn't decide to sta

"We're early in th
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bill," says Pete Larso
Advantis (www.adv
represents Jenner &

SKB Architectu
has been commissi
sign the firm's interi
lease.

E-MAIL: TMAZZUCCA@BIZJOU

I've oversaw pre-construction property acquisition and planning for hundreds of millions in built out value of mixed-use commercial development including hi-rise projects.

CONCEPTUAL DEVELOPMENT PLAN (CDP) AND FINAL DEVELOPMENT PLAN (FDP)
(RZ/FDP# 2005-LE-025)
MIDTOWN SPRINGFIELD

DEVELOPER

MIDTOWN SPRINGFIELD LLC
8081 WOLFTRAP ROAD
SUITE 300
VIENNA, VA 22182

OWNERS

(PARCEL 4)
MIDTOWN SPRINGFIELD LLC
8081 WOLFTRAP ROAD
SUITE 300
VIENNA, VA 22182

(PARCEL 4P)
FEDERAL REALTY INVESTMENT, TRUST
1626 E. JEFFERSON ST.
ROCKVILLE, MD. 20852

(PARCEL 6A)
SPRINGFIELD HOSPITALITY, LLC
1244 WEST CHESTER PK. WEST
SUITE 404
CHESTER, PA 19382

(PARCEL 4B)
NGUYEN & ASSOCIATES LP, LLP
6333 BRANDON AVE.
SPRINGFIELD, VA 22150

(BLAND ST. RTE 1135 R/W VACATION)
BOARD OF SUPERVISORS, FAIRFAX COUNTY
12000 GOVERNMENT CENTER PARKWAY
FAIRFAX, VIRGINIA 22035

COMMONWEALTH OF VIRGINIA
ERIC S. BIRGIL
No. 025448
7-28-06
PROFESSIONAL ENGINEER

JULY 28, 2006
SHEET 1 OF 16
ZP-12325

I played a Principal role in planning, developing and marketing these sustainable mixed-use properties

2.0 Project Vision and Development Program

2.1 VISION

EcoVerde

"a form and flavor unlike that of other places"
– John Nolen, 1923

John Nolen offered this quote in 1923, upon setting out to develop "St. Petersburg Today, St. Petersburg Tomorrow", the first general plan proposed for the rapidly growing City of St. Petersburg. One of the nation's preeminent urban visionaries of the first decades of the 20th century, John Nolen's prescience describes in full our redevelopment vision for Tropicana Field.

Our vision embraces the transformation of Tropicana Field into EcoVerde, a globally recognizable community knitted into the City's fabric as a socially, economically and environmentally sustainable, mixed-use community of distinctive districts populated by retailers, restaurants, lodging and entertainment venues, commercial office uses, and unique multi-family residences. As a highly visible "gateway" location to St. Petersburg, EcoVerde reinforces the City's goals for an exciting, cosmopolitan and sustainable, 24-hour Intown environment to complement Downtown's remarkable waterfront, and materially connect to and strengthen the surrounding neighborhoods. EcoVerde is a place where people of all ages, incomes, and lifestyles will come together to live, work, shop, and play in a vibrant urban atmosphere.

At the heart of our proposal, we embrace environmental stewardship with an outstanding EcoWalk along the banks of Booker Creek, that both respects its historic value as a natural amenity and leverages this value into a dynamic destination for mixed-use activities in Intown St. Petersburg. This highly magnetic area of EcoVerde will become an inviting place for humans and wildlife to co-exist in a carefully designed eco-system. Setting off along the naturally restored habitat at the northern end of the site, EcoWalk allows for observation of indigenous wildlife including the area's whooping crane population. Here, residents and visitors will find the Crane Interpretative Pond, a naturally restored water habitat neighbored by an Ecoseum (e-co-zee-um), highlighting St. Petersburg as a Green City, with interactive educational exhibits and learning programs on the natural habitat of the St. Petersburg region and sustainable solutions for adapting the human and natural environments to emerging ecological challenges. Walking south along EcoWalk invites an enjoyable transition to an intimate urban texture of tree-shaded walkways lined with eclectic dining, small shops, pocket parks, and public art that animate the space, with residential flats stepped back above. Emerging to the south is The Landing, a floating stage in an amphitheatre setting that will provide a year-round venue for City residents and visitors to gather and enjoy outdoor music and theatrical performances and exhibitions by the City's artistic community.

To expand and diversify choice and availability of shopping opportunities for residents and visitors, strengthen connectivity with the commercial corridors that lead to the City's waterfront and extend revitalization throughout the greater Intown and Midtown neighborhoods, we propose a well-balanced Galleria Main Street district at the eastern portion of EcoVerde. As an exciting gateway centered upon Galleria Plaza, this district seamlessly blends a mix of ground floor large, medium and small format retail establishments including an urban grocer, diverse entertainment choices including a movie cinema and bowling alley, and fine and casual dining, with offices and residential flats above.

The architectural character of Main Street will be a diverse mix of modern eclectic styles reflective of St. Petersburg's heritage through textured variety, materials, and striking signage, with canopies, arches and arcades t o protect against the mid-day sun. Our architectural visio n includes Leadership in Energy and Environmental Desig n (LEED) certification and incorporation of other practic es recommended by the Florida Green Building Coalition.

ECOVERDE

AN INTOWN NEIGHBORHOOD WHERE EVERY ASPECT OF LIFE OCCURS

RESPONSE TO TROPICANA FIELD RFP

ARCHSTONE MADISON

DEVELOPMENT CONCEPT

Potomac River Green is an innovative mixed-use real estate development concept for transforming the 25 acre site now occupied by the Potomac power station and an associated Pepco substation.[4]

It features extraordinary water front access and an economically sound mix of eco-smart residential, commercial and civic buildings capped by a landmark new Energy Center building that will house a museum and new business center. The development will conform to LEED-ND© standards, and in many areas, strive to exceed these requirements.[5] Individual buildings will reflect LEED© standards and the Energy Center will be designed to approach net zero for carbon emissions.

The land use plan for Potomac River Green is designed to mesh with and enhance the current street grid for Alexandria while providing a new focal point for the City's northern waterfront. The street plans and buildings also align with the topography, taking advantage of natural water flows for storm water treatment and energy production.

The architecture for Potomac River Green has been chosen to reflect its proximity with Old Town Alexandria. It draws on federal 18th and 19th century architectural design, but from south to north transitions to 21st century design concepts across the project's three neighborhoods. The buildings at the south vary from four to five stories and blend with the adjacent predominantly brick and stone buildings. Just one block to the north, the style and materials take on a more contemporary look that includes metal and glass as well as brick and stone.

The architectural focus of Potomac River Green is the Energy Center (Figure 19). This building is also the hub for certain on-site utility services (electricity, waste water treatment) that branch out from the building to provide sustainable services to nearby neighborhoods. The Energy Center is three stories, but includes an atrium space for natural ventilation that rises to 60 feet. The core masonry wall of this building will be built from the old power plant's exterior brink and salvaged concrete. This building will also use recycled wood beams, solarium glass and stone. Many of these elements will come to the site prefabricated.

Figure 12. Site Model

The northern neighborhood steps down to three story energy-efficient townhomes. The neighborhood will use clean geothermal and solar energy systems. It will be built from efficient pre-fabricated components (e.g., wood panels and siding, metal panels).

[4] As discussed in Section V. below, the Pepco electrical substation, which is now co-located at the PRGS and which plays an essential role in the local transmission and distribution grid, would be upgraded and integrated into the development plan contemplated for PRG.

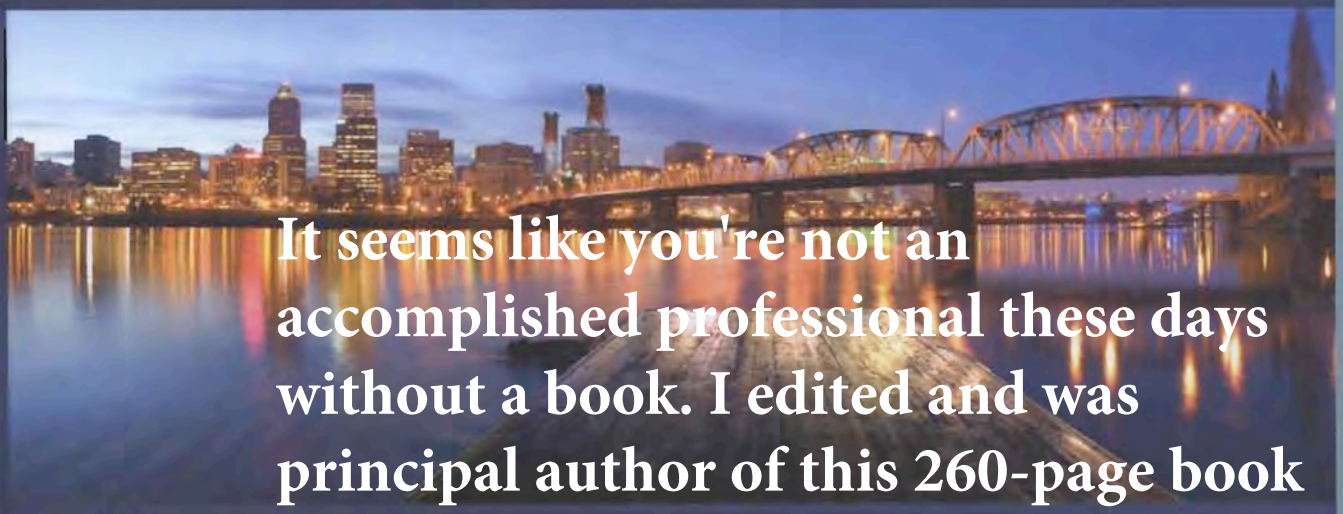
[5] Leadership in Energy & Environmental Design (LEED) is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies intended to improve performance in metrics such as energy savings, water efficiency, CO2 emissions reduction, indoor environmental quality, and stewardship of resources. LEED was developed by the U.S. Green Building Council (USGBC). LEED for Neighborhood Development (LEED-ND) provides a rating system for neighborhood planning and development based on the combined principles of smart growth, New Urbanism, and green infrastructure and building. LEED-ND places emphasis on the site selection, design, and construction elements that bring buildings and infrastructure together into a neighborhood and relate the neighborhood to its landscape as well as its local and regional context.

Figure 11.
Overview Map

1. Energy Center Building
2. Office Plaza
3. Hotel + Waterfront Plaza
4. Mixed Use Residential
5. Quiet Residential
6. Park Space

I led the planning team on this project.

Sustainability in America's Cities



It seems like you're not an accomplished professional these days without a book. I edited and was principal author of this 260-page book considered groundbreaking at the time.

Creating the Green Metropolis

Edited by

MATTHEW I. SLAVIN

URBAN PLANNING | DESIGN

Sustainability in America's Cities highlights how the nation's cities are solving conflicts between urban development and the environment, and reducing the impacts of climate change. It presents empirically based, multidisciplinary case studies of sustainability policy, planning, and practice from a geographically diverse group of cities.

Advance Praise for *Sustainability in America's Cities*

"This book is amazingly rich in its content and breadth—from wind energy production in Honolulu to urban forest restoration and greening food supplies in New York City. It does as much to back the theory of sustainable urbanism with hard numbers and convincing case commentary as any work to date. It also packs a powerful political message—green buildings, green transport, and green energy can translate into green jobs. It's a must-read for anyone who cares about charting a sustainable urban future."

—ROBERT CERVERO, Professor of City and Regional Planning and Director of the Institute of Urban and Regional Development, University of California, Berkeley

"Across America, cities are driving the innovative solutions we need to deliver the environmental, social and economic benefits of sustainability. Through a careful examination of some of the successes and failures of our urban initiatives, *Sustainability in America's Cities* provides timely lessons for those interested in making our buildings, cities, and planet more livable."

—RICK FEDRIZZI, President, CEO and Founding Chair, US Green Building Council

"Cities' practices can be identified, but without some assessment of how well these practices work in different settings, prescriptions seem premature at best. . . . this book jumps into the void, providing detailed information heretofore not readily available."

—From the foreword by KENT E. PORTNEY, Professor of Political Science, Tufts University

MATTHEW SLAVIN is founder and Principal of Sustaingrüp. His publications on energy, climate change, and sustainability have been featured in leading professional journals and metropolitan newspapers.

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Chapter 1

The Rise of the Urban Sustainability Movement in America

MATTHEW I. SLAVIN

> It remains to be seen how U.S. cities will act to reduce their carbon emissions in coming years . . . given that most cities . . . have already been built and it is becoming crucial to find ways in which to make them function sustainably.
>
> —Herbert Girardet, World Future Council, 2008

In searching for a tipping point at which sustainability became mainstream in America, one might look to 2005. In that year website SustainLane.com began issuing annual rankings of the fifty most populous cities in the United States. SustainLane is not the only rating system that uses quantitative scoring to rank U.S. cities in terms of how green they are, but it has become the most highly visible and widely referenced source for comparatively assessing sustainability in urban America. Its annual rankings have been reported by broadcast media networks National Public Radio, CNN, NBC, CBS, and ABC, posted on a wide range of social networking Internet sites, and received coverage in the *New York Times*, *Wall Street Journal*, *Los Angeles Times*, and *USA Today*. Mayors Michael Bloomberg of New York, Richard Daley of Chicago, and Gavin Newsom of San Francisco have all publicly praised the website and the high rankings accorded

Chapter 7

Wind, Waves, and Watts: Creating a Clean Energy Future for Honolulu

MATTHEW I. SLAVIN, DOUGLAS A. CODIGA, AND JASON J. ZELLER

> The future of Hawaii requires that we move more decisively and irreversibly away from imported fossil fuel for electricity and transportation and towards indigenously produced renewable energy and an ethic of energy efficiency. . . . The very future of our land, our economy, and our quality of life is at risk if we do not make this move and we do so for the future of Hawaii and of the generations to come.
>
> Energy Agreement to the Hawaii Clean Energy Initiative (October 2008)

Hawaii currently uses imported oil to generate the vast majority of the electricity it uses; its dependence on oil-fired generation is more than thirty times the national average. This chapter examines plans to transform Honolulu, the state's largest municipality, into one powered primarily by renewable energy. We begin with an overview of how Honolulu came to be heavily dependent upon oil for electricity generation and how the Hawaii Clean Energy Initiative emerged during the first decade of the twenty-first century as a response to this overdependence. The initiative amounts to nothing less than a paradigm shift that would enable Honolulu to drastically reduce its dependence on imported oil and rely primarily on renewable energy sources such as wind,

Chapter 11

Where Sustainability Stands Now: Contemporary Trends and Future Prospects

MATTHEW I. SLAVIN

Those who cannot remember the past are condemned to repeat it.

George Santayana (1905), *Reason in Common Sense*

Thumbing through a copy of Jane Jacobs's seminal 1961 work *The Death and Life of Great American Cities*, it is surprising how little is said about the relationship between urban growth and development and the larger circle of natural assets upon which life in the city depends. This might possibly be attributed to the formative experiences that led Jacobs to write the book, reflecting her pique with the building predilections of Robert Moses and imbuing *Death and Life* with an inward focus revolving around issues of urban regeneration and neighborhood protection. Of course, the year following publication of Jacobs's formative book saw the appearance of another work that would shape the attitudes of future generations and do as much as anything to ignite the environmental movement in America. This was Rachel Carson's *Silent Spring*, published in 1962. Yet, there has not always been a well-reflected convergence between the views espoused by these two groundbreaking books. The editor's recollection is that early-term graduate students in urban studies and planning found Jacob's book on their reading list while graduate students in