

**FINDING OPPORTUNITY
IN THE
GREEN NEW DEAL**

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The Green New Deal was proposed by the [Green Party of the United States](#) in 2016. The Green New Deal outlines a plan to develop a new, green economy based on 100% clean energy by 2030. It has been endorsed and promoted by many candidates for President of the United States both in 2016 and, now, in 2020.

This whitepaper will provide a synopsis of the Green New Deal, highlights current, forward-looking programs that thoughtfully address “green” ideas and initiatives, and proposes sustainable opportunities based on emerging technologies that engineers, owners, politicians, voters and other stakeholders may consider.



Business is driven by emerging technologies and....policy

A Synopsis of the Green New Deal

The Green New Deal's stated goal is a "massive mobilization" on the scale of a World War II effort to transition the energy system and economy of the United States (and the world) to clean, renewable energy by 2030. The earliest paragraphs of the Green New Deal call for the complete elimination of fossil, fracked and nuclear fuels as a foundational part of an economic and environmental program that postulates to:

- Revive the economy
- Promote climate change initiatives
- Make war obsolete
- Cut military budgets in half

The Green New Deal proposes assistance for workers and communities displaced by this bold energy transformation. It states that clean energy is a human right and advocates the "common good." It claims that 200,000 deaths and millions of afflictions per year are attributable to fossil fuels and human health will dramatically improve when fossil fuels are eliminated. The Green New Deal will redirect governmental subsidies given to the fossil and nuclear industries to "real job creators" in the green industry. It will end unemployment and provide 20 million new jobs. It promises to keep money in local communities, fund more research, finance cooperatives for groups of users and institute "democratic reforms" to make stakeholder involvement more "participatory". The Green New Deal will require robust energy conservation and efficiency and the "electrification" of everything including transportation and space heating. It claims that no "technological or logistical barriers" exist today to delay or slow this ambitious 2030 initiative.

The ideas in the Green New Deal seem noble, but when the United States arguably has a 100 year supply of coal and a 100-200 year supply of oil and natural gas, the ideas lose luster. [The US Energy Information Agency reports](#) that 89% of power production in 2018 in the United States came from fossil or nuclear fuels.

Eliminating these abundant, affordable and domestic natural resources as a source of fuel by 2030 is, in fact, politically and technically unachievable. ConEd in New York city recently announced the need to re-design their energy efficiency programs for major buildings due to non-owner tenant control of building lighting and HVAC and the general feeling by operators that they were **already** doing what they needed to do. Essentially, [as they have discovered in New York City](#), the efficient daily (or hourly) use of electricity, natural gas (and water) is complex.



Consolidated Edison of New York finds energy efficiency is hard to achieve

Even the very progressive Salesforce.com was challenged to meet its own high sustainability goals in its beautiful **new headquarters building in San Francisco.**

So, what can we do... today... that might be a reasonable compromise?

Looking Forward with ASCE

The American Society of Civil Engineers (ASCE) has started to address the needs of a more sustainable future. **The ASCE Future World Vision** helps engineers and planners meet the challenges of the future by applying deep technical research on city models for 2030, 2040 and 2050. City model scenarios include a floating city to address sea level rise, a megacity to address cities in countries with burgeoning

populations of 25 million or more, a rural city for concentrations of populations around rich farmland or natural resources, a frozen city to inhabit vast areas of the Arctic and Antarctica, and finally, a futuristic off-planet city for when space travel becomes common.

In addition, the [US Green Building Council](#), the [World Green Building Council](#), the [Galvin Electricity Initiative](#), [The American Council for Energy-Efficient Economy](#), and many more governmental and non-government organizations, including academia, are focusing intellectual and investment resources on a cleaner and more sustainable environment.

Further, the local electric utility is working hard to address climate initiatives as well. The Electric Power Research Institute (EPRI) and the American Gas Association (AGA) are committing significant resources to electrification and renewable natural gas (RNG), respectively, www.epri.com and <https://www.aga.org/research/>

Finally, whitepapers like my [Sustaining the Earth Through Utility Innovations](#) offers the next generation of engineers a vision for the value of the work they do today and the value it will bring for tomorrow. <https://www.burnsmcd.com/insightsnews/tech/sustaining-the-earth-through-utility-innovations>

These initiatives clearly demonstrate that men and women around America and the world are thinking and working towards a greener and more sustainable future. In searching for a place to start....one great opportunity that most people could agree upon for a better and more sustainable use of natural resources is net zero energy and water use in buildings, facilities and plants across America.

Start with Net Zero Buildings

Commercial buildings consume 40% of energy and emit 40% of all carbon dioxide in America. Net zero buildings can help us start to achieve our environmental goals and provide unique and valuable new business opportunities at the same time. Net zero can be defined several ways. The best definition for early applications is “[the net energy or water used for an asset over the course of a one year period is produced on site.](#)” Buildings, facilities and plants experience peak periods of energy and water use as temperature, humidity, consumer use and production levels vary. During these peak periods, the facility will need

to be connected to the electric, gas or water distribution systems of the local utility. The distribution system or “grid”, as it is commonly referred to, has great value. The grid is very reliable and serves as back-up source for a facility. In fact, the electric utility grid is known to be 99.97% reliable on average across America. See galvinpower.org. The grid also connects users to the lowest cost electric generation available and connects users with one another. Owners of roof-top solar and neighbors that have storage (or the need for solar energy)... are connected by the grid.

In order to control their carbon footprint, some communities are passing ordinances for all electric or net zero buildings. Last summer, the [City of San Jose announced](#) that all residential buildings will be net zero by 2020 and commercial buildings by 2030.

In addition, corporations and small businesses across America are recognizing the opportunity to improve their triple/quadruple bottom line and their [ESG scores](#). Many companies are announcing carbon neutral or all renewable polices and goals. Recently, [PepsiCo Inc. said](#) it will use 100% renewable electricity for its U.S. operations starting this year as part of its goal to slash 20% of its greenhouse-gas emissions by 2030. Finally, [We Mean Business](#) is a collaborative of 218 (and counting) forward-looking companies committed to 100% renewable energy.

But how does an individual building or asset owner/operator start? Always mindful of cost and operational challenges of emerging technologies, here is proposed three year implementation plan for net zero energy and water.

Year 1- Work with your electric, gas and water utility to identify all the efficiency and demand side programs they have to offer and fully engage in the programs. Initiate a Request for Information built around efficiency and net zero principles and, based on the results, a Request for Proposal for electric, gas and water to identify world class solutions for your facility or plant. See my whitepaper, [A New Paradigm of Thinking](#) for a step by step process. Search for foundation and governmental funding for some or all of the possible projects. Start a general sustainability program at your company and educate employees on net zero energy and water use and how they can help. Start people thinking...

Year 2- Implement the best, most cost effective and highly visible solutions from the RFP process and start to measure the results. Engage vendors, contractors and especially the local electric, gas and water

utilities to support the more complex operations and maintenance of the upgraded and more sustainable assets.

Solicit positive or negative input from employees and customers about changes in comfort, convenience, safety, workflows, etc. This is much like what the **City of Seattle has just announced** with the transition of city owned buildings away from fossil fuels.

Year 3- Evaluate results of new program and perform a gap analysis to achieve net zero status. Consider a professional architect or engineer to supplement your staff on the new complexities of operations. Perhaps, the local utilities will hire and retain this increasingly specialized technical staff.

Based on the gap analysis, develop plans and specifications to construct the needed plant to achieve net zero and prepare a detailed O&M manual for safe and efficient operation. The Department of Energy (DOE) and the National Renewable Energy Laboratory (NREL) lead the nation on research and development on net zero energy building (NZEB) design. A rich resource for engineers can be found at WBDG.org. The **Bullitt Center in Seattle** is a current example of NZEB and Wikipedia provides a state by state list, albeit short, of NZEB's.

Avista Utilities has started an unregulated, *for profit* company, named EDO to support the complex operations and maintenance needs of the new, all electric, 160K square foot, eleven building ECO District in Spokane. EDO will use active real time energy management to provide regular reports on better district operation and ultimately use algorithms to manage various loads in the building(s). EDO could go upstream into wholesale energy markets in the future.



The zero carbon ECO District by Avista in Spokane is leading the way in net zero design.

The Green New Deal is very ambitious. Converting the entire US economy to all-electric with renewable sources of generation by 2030 is unachievable. However, emerging technologies are rapidly advancing and engineers are engaged in searching for cost effective, sustainable solutions every day as evidenced by the work of ASCE, EPRI, AGA and many other organizations. This paper offers an immediate place to start some of the concepts proposed by the Green New Deal with a three year plan to implement net zero buildings connected to our electric grid and water systems. Net zero means that the energy and water used by the building over the year nets to zero while still connected to a strong and robust grid. It will require emerging technology and new resources of energy, water and storage on site and will lead owners, engineers and operators of buildings to new viable, affordable and sustainable solutions that will advance the ambitious environmental goals of the Green New Deal within a reasonable timeframe for all parties involved.

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