

The Democrat Party Green ~~New~~ Flawed Deal

Through an effort spearheaded by Alexandria Ocasio-Cortez (AOC), The Democrat Party introduced their “Green New Deal” Congressional Resolution in February¹. While heavily focused on reducing carbon emissions to curtail “global warming”, surprisingly, the resolution author took liberty to propose creation of new entitlements including free healthcare for all, economic equity for all including those unwilling to work, etc.

This analysis focuses exclusively on the “environmental” initiatives. The “Green New Deal” is deeply flawed in assumptions and is lacking in supportive analytics. The most egregiously misdirected and ineffective initiatives are:

- **Become vegan to dramatically reduce cattle**
Alternative solutions are already in progress within the cattle industry that are equally effective and do not create adverse effect to US industry, workers and American preferences.

Cattle do indeed produce a great amount of methane; not expelled as “farts” but rather as burps. The cattle industry, in collaboration with the scientific community, have already been testing solutions via changes to cattle feed². As a result, cattle farmers are already adding probiotics and seaweed to the feed resulting in as much as 90% reduction of cattle-expelled methane.

That will put cattle below the methane expelled by our human population. Interestingly, the earth creature population that produces the greatest amount of methane is not cows; it's the termite population! Lord help us if ecologists attempt to eliminate termites!

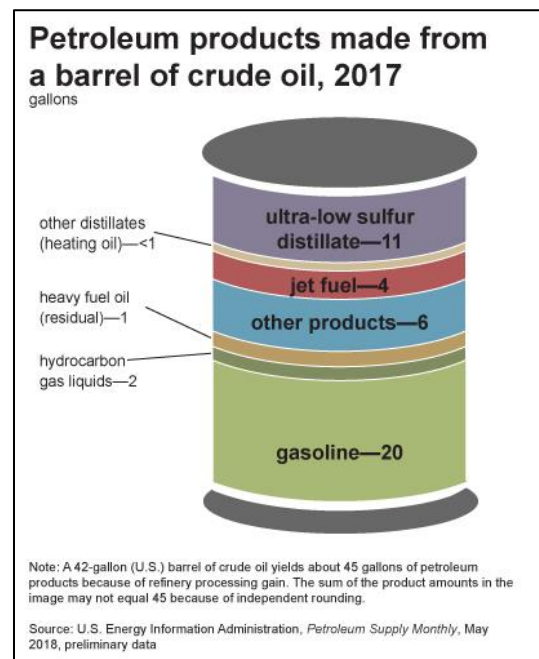
Cow manure piles is a secondary source of methane. This is a consequence of manure being stored in piles rather than being distributed across fields in open space. Efforts are already underway with cattle

ranches to revise their manure management strategies.

As for “Go Vegan”, vegans actually produce more methane than non-vegans; expelled at both ends. There are other benefits of increasing vegetable intake, but methane reduction is not one of them.

- **Eliminate use of gasoline and coal (transportation conversion to mass transit and bicycles)**
Not achievable within next 30 years and resulting carbon emission reduction is negligible.

First, “gasoline” is a generic term that actually comprises 3 different petroleum distillates, namely gasoline, jet fuel and diesel fuel (low sulfur distillate).³



Jet fuel comprises 11% of gas products and there are no replacements for jet engines in progress nor in the foreseeable future.

Diesel fuel comprises 31% of gas products. Its primary use is in freight tractor trailer engines (500+ horsepower) and secondarily engines that power train locomotives and generators.

Replacement of diesel engines is not in the foreseeable future. The extreme power requirements and continuous hours in use of freight tractors cannot be solved with current electrical alternatives.

Diesel powered generators are generally used in areas remote from accessible power and are used as backup facilities to provide electrical service when municipal power outages occur (e.g., hospital backup). As duration of needed use is not predictable, replacement of such is not practical via battery power alone.

Gasoline comprises the remaining 65% of “gas”. Most gasoline is used in passenger cars. Today, all-electric vehicles comprise about 2% of the 253 million vehicles on US roads.⁴ The current barriers to higher American adoption rate is “range anxiety” (how far you can drive before requiring a recharge) and charging infrastructure (availability of charging stations and time required for recharge).⁵

As calculated in Appendix A, conversion of all existing gasoline powered passenger vehicles to electric power will not only require construction of charging stations nationwide, it will produce a 28% increase in electricity demand from current levels. Our current US electrical power grid is already overtaxed during peak usage periods; additional electrical capacity would be required.

As detailed in Appendix A, with current wind turbine installation pace (which is strong), it will take 40 years to install enough wind turbines to meet the additional demand.

According to Berla⁶, the average lifespan of passenger cars is 13 – 17 years in the US. Given this lifespan, once electrical capacity is made available, a conversion would need at least an additional 10 years to permit car owners to gain a reasonable return on their investment.

*With these facts in mind, **complete conversion of***

***gasoline powered passenger vehicles to electric power will require 50 years of transition time.** Even with significant investments to accelerate turbine manufacturing and installation, a best case would require a minimum of 30 years and would yield only a 10 Gigaton reduction in carbon emissions or 1% of the target reduction amount⁷.*

- **Subsidize wind turbine expansion onshore and expand into offshore deployment**

Onshore installations are already in progress directly by power companies due to business economic benefit. Government involvement and incentives not required. Offshore wind turbines, double the cost and have only half the life of onshore installations. As such, offshore is not viable except where onshore is not possible and solar farms not practical.

US power companies are diligently pursuing installation of wind turbines. There is significant economic benefit to these companies as wind turbine technology is more profitable than use of fossil fuel. These power companies need no additional incentive to expand their use of renewable energy; their companies become more profitable with each installed turbine.

At present, wind turbine construction companies can erect 12 onshore wind turbines per day across the country. Offshore wind turbines require significantly more effort and the lifespan of the wind turbines is significantly less due to the stronger forces on the oceans and offshore winds along with the corrosive nature of salt water. As such, the cost of offshore wind turbines is double that of onshore turbines (\$5 million versus \$2.5 million each) and their lifespan is shorter.

- **Meet all power demands via renewable energy**

A good “evolutionary” aspiration that the US can work towards; it is a noble intent. However, it cannot be “revolutionary”. Given the amount of fossil fuel presently used by power stations, complete elimination will take more than 50 years.

Fossil fuels comprise 2,536 of the 4,034 billion kwh power (62%) generated in the US annually⁷. The use of coal for power generation contributed 1.2 billion tons of carbon emissions. Natural gas contributed 0.5

billion tons.

If all fossil fuel generators were replaced with wind turbines, 390,000 such turbines would be required. This is in addition to the 175,000 turbines required to convert all passenger vehicles from gas power to electric power. Even if current turbine manufacturing and installation processes were doubled to 24 turbine installations each day, 65 years would be required to completion. If turbine deployment was augmented with simultaneous deployment of both nuclear and solar power stations, then a most aggressive plan of completion within 50 years may be possible.

Hence, while of noble intent, this project is aspirational. Continuous progress can be made but intervention, involvement and interference by government will only slow progress, not enhance it.

- **An overarching “fund projects” to protect people from climate change and extreme weather**

This is a terrible idea and demonstrates a complete disconnect with historical experience!

Our government does many things well with no better example than what it has accomplished in military

prowess and mobilization ability. This is an area that our government has much experience and expertise in.

Our government has repeatedly demonstrated that funding and involvement in concerns outside its expertise are disastrous failures. There is no more relevant example than the Obama administration “Green Effort”. According to a Washington Times article⁸ in 2015, our government lost \$2.2 billion of American taxpayer money through the failed companies that were funded. While Solyndra is the infamous reference, there were actually five different “Green Energy” companies that were funded and subsequently failed.

Solyndra Inc.
 Abound Manufacturing Solar, LLC
 Fisker Automotive Inc.
 Vehicle Production Group, LLC
 Beacon Power

Our Federal government is best at legislation and regulation, “where necessary” ...that is where its involvement should end!

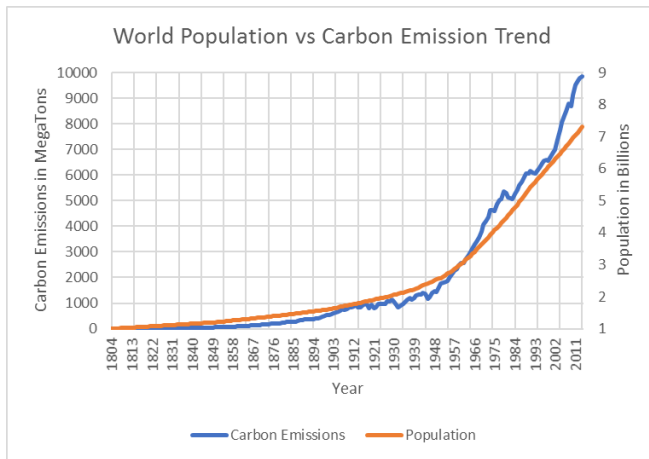
The “Experts” Green Deal

Project DrawDown⁹ is an initiative that was created years ago to devise sound methods to reduce global warming. The group is comprised of scientists, ecologists and researchers; not politicians. This past year, the group created a “Top 20 List”¹⁰ of actions that can significantly reduce the carbon footprint and return them to tolerable levels. Here is a select list from the top 20 that require no Federal funding/assistance, will produce more than half of the carbon emission reductions targeted and will create other environmental improvements at the same time:

Rank	Initiative	Annual CO2 Reductions (Gigatons)
1	Reduce Population Growth	3.4
2	Refrigerant Management	3.0
3	Wind Turbines (Onshore)	2.8
4	Reduced Food Waste	2.4
5	Reduce Cattle Carbon Emissions	2.2
6	Solar Farms	1.2
7	Afforestation	0.6
8	Geothermal energy production	0.6
9	Nuclear energy production	0.5
10	LED Lighting (Home&Commercial)	0.4
	TOTAL	17.1

Reduce Population Growth

As you can see, the most dramatic factor causing earth environmental challenge is human population growth. This is the elephant in the room that no one wants to speak about. Yet, without question, it is the most significant issue we face today, and the magnitude of the problem is growing exponentially¹¹. Left unchecked, our world population will grow to 10 billion by year 2044; a level that scientists believe is unsustainable. Well why would they think that? Let's see if there is any correlation between population and our world carbon emissions¹²...

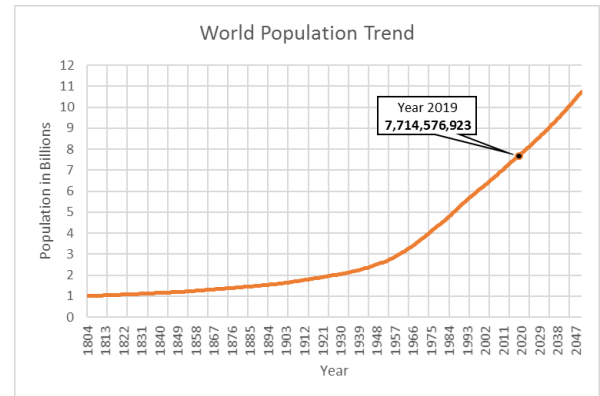


The graph clearly shows a very tight correlation. But carbon emissions are increasing faster in the later years than population growth...why is that?

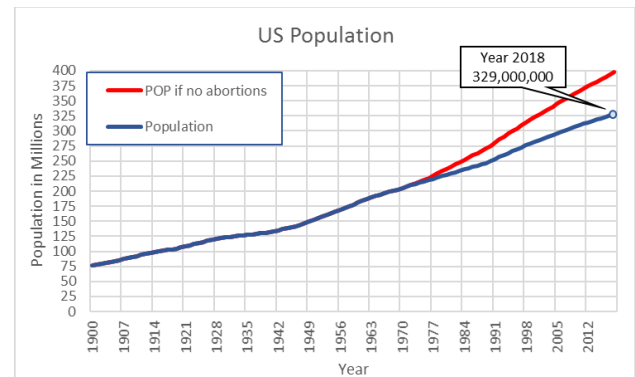
Quality of Life has improved. Nowhere more than in the US. The 1960's brought industrial automation and family improvements such as 2nd family car purchases and home air conditioning. These depend on energy. And then starting in the 90's, a technology explosion occurred. It started with family PCs and rapidly progressed to each family member having their own PC, their own mobile phone and their own car. To this day, technology purchases continue to be the most significant purchase category during the Christmas holiday season, and they all demand energy.

The USA boasts the highest quality of life in the world for its general population. The carbon footprint of the "average" American is 20 tons annually versus the rest of the world at 4 tons. Indeed, even the American homeless population create 8 tons of carbon each year versus the world average of 5 tons. Is it any wonder that so many people want to immigrate to the US?

Population grows in a compounding manner, just as does money interest on savings. As happens with any compound growth, an acceleration elbow occurred in the 1950's when the world population arrived at a critical mass of 2.5 billion.



The world population is presently growing at more than 100 million each year. But many more pregnancies occur each year. According to a Guttmacher study¹³ in 2015, approximately 56 million infant/fetal abortions occur each year worldwide. In the US, 45% of pregnancies were unintended.



In the US, there is overwhelming sentiment that women should have sole discretion with her own body, including conception and carrying an infant to term. Project Drawdown suggests that educating women and providing family planning services are two key components to stem the population explosion.

One other component that should be considered is contraception. 225 million women in lower-income countries want the ability to guard against pregnancy but they lack access to contraception. In the US, contraception is available but children under the age of 16 require parental consent to obtain such.

Our Federal tax laws provide tax deductions for each dependent child. Our government also provides numerous free services to lower income mothers and

their children. Perhaps our tax laws should consider providing a similar tax deduction that rewards married couples that wait until age 25 before having children.

Refrigerant Management

Refrigerant (typically freon) is used in air conditioners, heat exchangers and refrigerators. As of January 2020, Freon (R22) is banned for use and import in the US and most European countries. The ban includes provisions for the disposal of freon in a safe manner as well. While banned, a black market continues to provide low cost availability in Europe to a limited extent.

This effort to eliminate Freon is replete with legislation and oversight and requires no additional actions by the US government.

Eliminate Fossil Fuel Use in Energy Generation

The Drawdown list includes four different strategies that attack this goal:

- Wind turbine energy
- Solar Farms
- Geothermal energy generation
- Nuclear energy generation

These have been listed in their order of preference. Where possible and efficient (with sufficient wind and area), wind turbines are the most quickly deployed and least obtrusive.

Solar Farms can be deployed rather quickly but render the space they occupy unusable for any other purpose.

Geothermal energy uses the “heat of inner earth” to create electrical energy for nearly free once constructed. However, the drilling into earth is costly and time consuming and is not practical in many areas.

Nuclear generators have been in use longer than new wind turbine technology. They are efficient but much more complex and require meticulous management to maintain a safe environment.

All of these electricity generation methods are being deployed by energy companies. Energy companies are incented by the lower operational costs; they make the companies more profitable.

Outside of regulations and legislation, our government should not interfere in these projects and there is no need for funding.

Food Related Carbon Reduction

There are two strategies included in the Drawdown list that are food-related:

- Reduce Food Waste
- Reduce Cattle Carbon emissions

One-third of food that is raised/prepared never makes it from factory/farm to the consumer’s fork¹⁴! All of the energy, feed and fertilizer used to create the food is squandered. The food items emit large amounts of methane when discarded as garbage.

This problem is exclusively contained in high-income countries; it is relatively non-existent in low-income countries. It is mostly a problem of over-abundance but transportation logistics can also be a factor.

This requires no “funding” from government. However, government can establish regulations and fines that can particularly incent more efficient production in the manufacturing industry.

Cattle carbon emission has already been previously discussed. Feed content and manure management changes are in progress and will correct the problem. The often referenced alternative of increasing plant diet is not practical. Expecting meat-lovers to abandon their favored food so that cattle can be exterminated to make room for our ever-growing human population is not a reasonable approach.

Afforestation

Trees and shrubs are natural sinks for CO₂. Just as a heat sink extracts heat from electronic components, trees extract CO₂ from the air. But much forest has been eliminated as our population has encroached into previously wooded areas with housing and industry.

Empowering Natural Resource agencies to plant trees in former mining areas and open areas can quickly grow forests back into a formidable opponent to carbon emissions¹⁵. Whether it is with tropical forests, jungle forests or plantation forests, countries need to be educated on the need and empowered to grow our forests.

LED Lighting

Use of incandescent light bulbs consume 7 times more electricity than LED bulbs. While the cost of electricity varies by state¹⁶, the average cost of electricity in the US

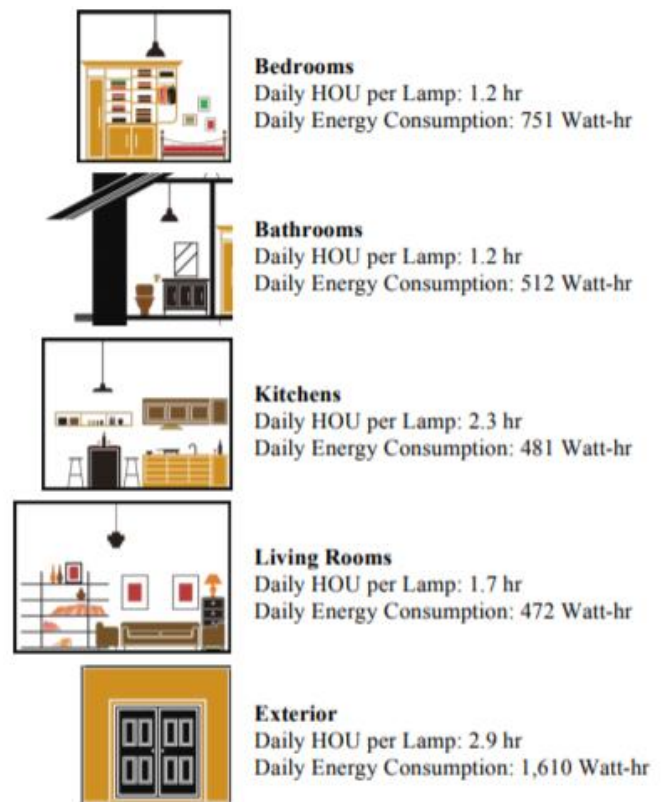
is 12¢ per kwh. And at present, LED bulbs are presently about 3 times the cost of incandescent.

For commercial locations (e.g., retail stores, office buildings, parking lots, etc.), most light bulbs are in use throughout the day. In these locations, site owners typically gain economic benefit in converting from incandescent bulbs to LED bulbs in the first month of use. Indeed, most such site owners have already converted to the use of LED lighting and use of LED lighting is standard in all new construction.

Given these numbers, residential users will begin saving money in the first year if they convert any bulb in their home that is used for an hour or more each day.

According to the US Department of Energy, the following diagram shows the average use of light bulbs in different areas of the home¹⁷. An average residence will save more than \$150 per year by converting these high use areas to LED lighting.

Government involvement should be legislative in banning the use of incandescent lighting in commercial locations only (California has already done so). Sale of incandescent lamps can be either banned or taxed by the government to compel the residential sector.



Conclusions

The Green New Deal resolution is at best aspirational but it is simply not realistic. It contains measures that are either misdirected, extreme given other readily available solutions, or they simply cannot be achieved. Perhaps most alarming, the resolution fails to include the most significant factor that is adversely affecting our environment; namely the human population explosion. It could be that there are no solutions to the exponential population growth given current social beliefs and barriers. But such is not a reason to dismiss the matter as a non-problem nor to hide its influence.

The other caution is in bringing government involvement and funding in any of the matters. It is good to bring visibility to the subject and to promote progress against objectives. But government funding (which ultimately means through American tax dollars) is not necessary and has been historically proven to be counter-productive. Government management of the associated efforts would also be unhelpful; the private sector and particularly the industries directly affected by measures.

Appendix A

US Infrastructure Needs to Support 100% Conversion of Passenger Cars from Gas to Electric

Factor	Amount	Data Source
Number non-Elec Cars In US	253,000,000	https://berla.co/average-us-vehicle-lifespan/
Percent non-Elec Cars In US	98%	https://en.wikipedia.org/wiki/Plug-in_electric_vehicles_in_the_United_States
Avg Miles/Yr/Car	13,474	https://www.fool.com/investing/general/2015/01/25/the-average-american-drives-this-much-each-year-ho.aspx
Elec Car kwh/100 Miles	34	https://afdc.energy.gov/fuels/electricity_charging_home.html
Total kwh/Yr/Elec Car	4,581	
Total mwh/Yr/All Cars	1,134,693,777	
Current mwh Electricity/Yr/US	4,034,000,000	https://www.eia.gov/tools/faqs/faq.php?id=427&t=3
Resulting US Electricity Usage Increase	28%	
Avg Wind Turbine mwh Elec/Yr	6,500	http://www.ewea.org/wind-energy-basics/faq/
Number Wind Turbines Needed	174,568	
Years To Construct Infrastructure	40	

At present, US power companies are diligently pursuing installation of wind turbines. There is significant benefit to these companies with the more economical means of generating electricity versus current non-renewable energy method. These power companies need no additional incentive to expand their use of renewable energy; their companies become more profitable with each installed turbine.

Wind turbines are large and must withstand considerable wind force. Transportation of wind turbine parts to their installation sites is challenging. Each turbine blade requires two train cars for rail transportation due to length of the blades. Special transport vehicles are required for the remaining local transport. Installation requires use of cranes and construction helicopters.

At present, wind turbine construction companies are able to erect 12 wind turbines per day across the country. That is for onshore turbines. Offshore wind turbines require significantly more effort and the lifespan of the wind turbines is significantly less due to the stronger forces on the oceans and offshore winds along with the corrosive nature of salt water. As such, the cost of offshore wind turbines is double that of onshore turbines (\$5 million versus \$2.5 million each) and their lifespan is shorter.

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