

# Watt's Happening? #98

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## 2017: New Year for New Energy



*Wind and solar power will continue to lead the fight against climate change in 2017.*

Last year was an historic year for renewable energy. Planet Earth is breathing a bit easier as investment in new solar and wind power exceeded investment in fossil fuels for the first time, but we still have a long, long way to go.

Let's have a look into the near future and see what's just around the corner. Some good, some not so good.

### PROBLEMS

Though more and more countries are making big efforts to switch to renewables, not everyone is on board with sustainability.

Canada has just seen a decade of indifference and climate-change denial, but a new federal government sheds a ray of hope. Alberta has sworn off coal and is aiming for big growth in solar and wind, so it may move ahead of Ontario as Canada's clean energy leader.

The United States has become the second largest adopter of renewables on the planet (China is first) but weak policies and outright discouragement has held them back.

Texas for instance is a global leader in wind power and smart grids, but proposals to incentivize solar have been routinely shut down since 2005, in spite of the fact that they have 20% of the country's potential solar capacity.

And now what will Trump do? Nobody knows.

Tony Abbott, prime minister of Australia has been fighting solar and promoting coal since he was elected in 2013 while Spain has implemented a "sun tax" and banned community ownership of solar arrays.

### GOOGLE GOES CLEAN

On the good side, Google is on a renewable energy-purchasing binge, aiming to be 100% clean energy powered by the end of 2017.

Globally, Google uses some 5.7 terawatt-hours of power each year, the same as a large mega-city.

Google's head of energy policy explains the move. "Climate change is an urgent global imperative that we need to solve. Our goal benefits everybody and the planet."

He explains that it makes good business sense too, because the cost of renewable energy is now competitive with most other sources, and continues to come down. The cost of wind power has dropped by 60 percent and the cost of solar by 80 percent over the last six years.

Renewables also help insulate the company from unpredictable price fluctuations typical of non-renewables. Since no fuel is needed for wind or solar power, operating costs are stable and predictable over the long term.

### **NOT ENOUGH TO MEET COP21 GOAL**

The International Energy Agency (IEA) is warning that the world is still falling "worryingly short of what is needed" when it comes to deploying clean energy tech to help meet the carbon emission goals set at the Paris climate conference (COP21) in 2015.

Total installed renewable capacity currently provides about 23% of global electricity generation, says the IEA, sustained by solid growth in solar and wind.

But to limit global temperature increase to no more than 2 degrees C. will require more than two-thirds of electricity to be generated by renewables by 2050. The share of renewables in the generation mix will have to increase from 23% to 67%.

Coal and gas-fired power plants equipped with carbon capture and storage will supply 12%, and nuclear will increase from its current 11 to 16%.

Most of the growth will need to come from solar and wind. Solar increase is keeping up well, already having achieved the growth rate needed for 2025 of about 45 GW/yr (gigawatts, or billion watts per year). This must double again to 94 GW/yr. by 2035, and then double again to 189 GW/yr. by 2050.

Challenging but doable, especially with solar already ahead of the curve and wind a close second.

How much will this cost? About \$1 trillion dollars per year for the next 36 years will be invested in new renewable energy to meet the COP21 goal. To put that into perspective, currently the world pays about \$6 trillion dollars per year to burn fossil fuels (not accounting for hidden costs like health care). Which is the better deal?

The battle for clean energy is far from over, but if you follow the money, it's clear where we're headed. Last year was good. 2017 has to be even better.

## Google is aiming to be 100% clean energy powered by the end of 2017.



*To limit global temperature increase to no more than 2 degrees C. will require more than two-thirds of all electricity to be generated by renewables by 2050.*