

# Zero-emission fossil fuel power plant

Based on article

"Goodbye smokestacks: Startup invents zero-emission fossil fuel power"  
by Robert F. Service, Science News, May 24, 2017.

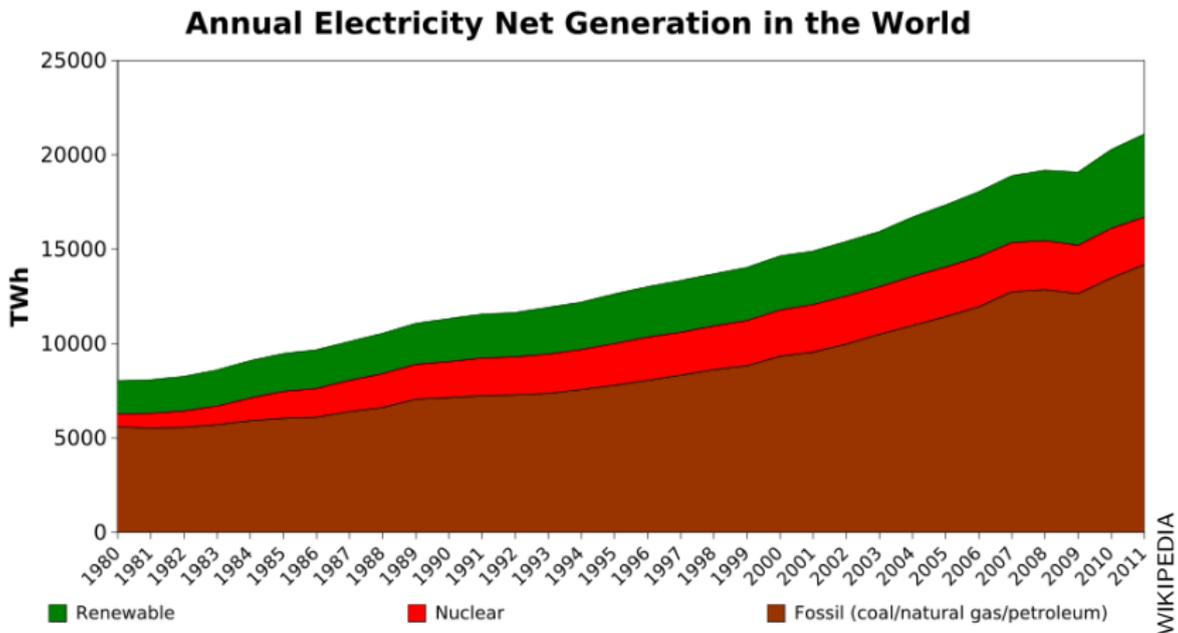
presentation by Dmitriy Fedoriaka,  
Moscow Institute of Physics and Technology

June 9, 2017

- Modern fossil fuel energy
- New technology
- Advantages
- Implementation

# World electricity generation

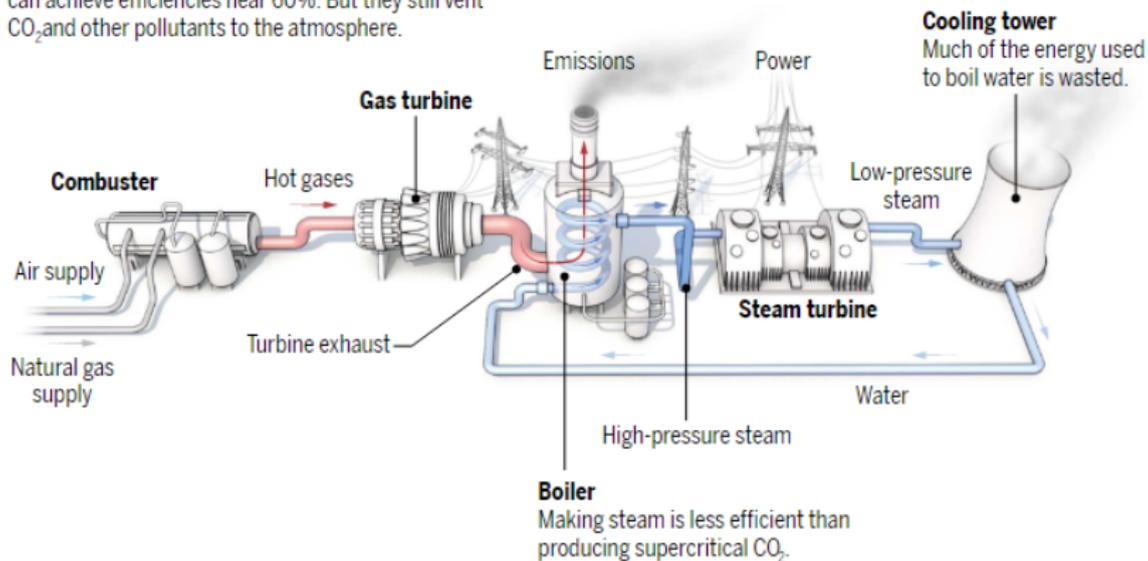
- 66 % — fossil fuel
- 22 % — natural gas



# Natural gas combined cycle

## Natural gas combined cycle

Natural gas power plants are cleaner than coal and can achieve efficiencies near 60%. But they still vent CO<sub>2</sub> and other pollutants to the atmosphere.



- Air pollution
- Efficiency loss on cooling



- Cleanness
- Water and pure CO<sub>2</sub> as byproducts
- Efficiency of 60 %
- Low cost of \$0.06 per kWh
- Small size

# Prototype power plant (Houston, Texas)

- March 2016 — building started
- 2017 — launch
- 25 MWh — power



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# Full-scale plant (plans)

- Opening in 2021
- Power of 300 MWt
- Cost of \$300 million

- Conventional natural gas cycle
- Allam cycle
- Benefits
- Prototype and future plans

- Robert F. Service. Goodbye smokestacks: Startup invents zero-emission fossil fuel power // Science News, May 24, 2017  
<http://www.sciencemag.org/news/2017/05/goodbye-smokestacks-startup-invents-zero-emission-fossil-fuel-power>  
(including pictures)
- <https://netpower.com>
- [https://en.wikipedia.org/wiki/Electricity\\_generation](https://en.wikipedia.org/wiki/Electricity_generation)