Toward Energy Independence:

New Wind Energy

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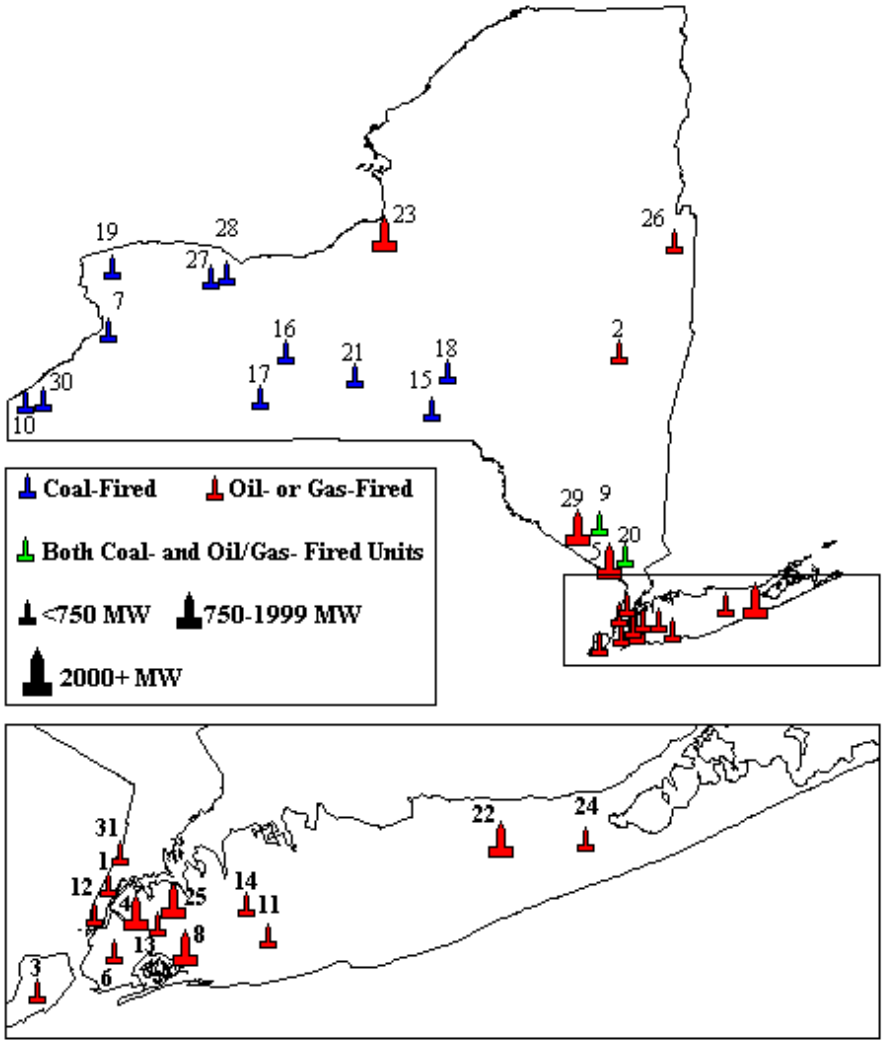
Air Impacts of Traditional Electric Generation

40% of all Carbon dioxide (CO_2)
leading greenhouse gas

67% of all Sulfur dioxide (SO_2) –
leading precursor to acid rain

25% of all nitrogen dioxide (NOX) -
leading component of smog

9% of New York State's Electricity comes from Oil burning power plants



NYS Lakes

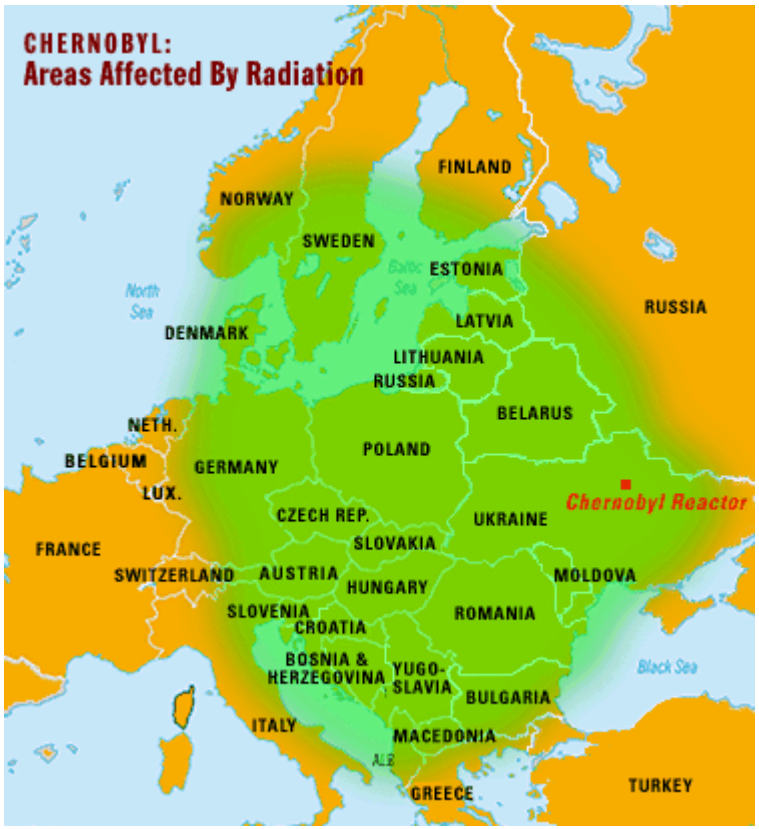
Air Pollution Impacts

1 in 13 US school age children now have asthma

An April 2003 study found urban New York areas with childhood asthma rates as high as 25%

NYS Nuclear Power Plants

29% of NYS electricity comes from 6 nuclear power plants



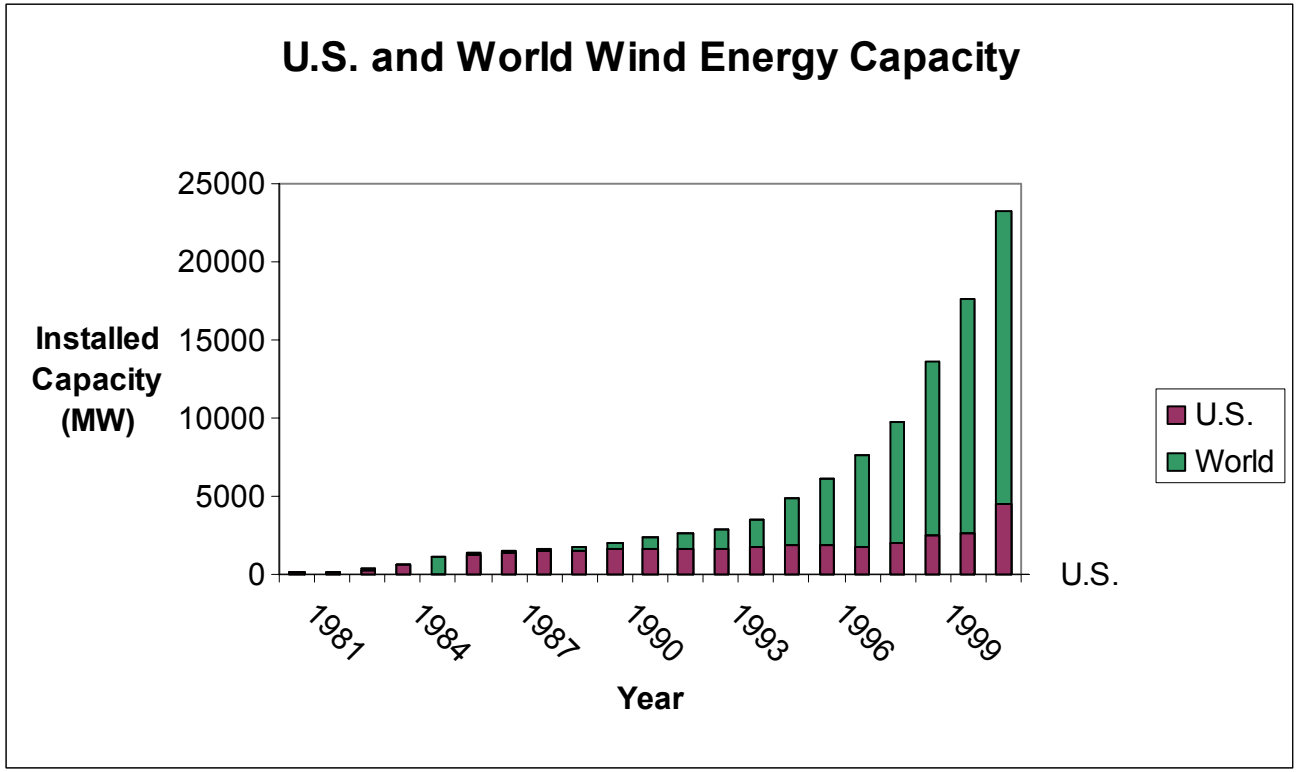
The plane that took out the 2nd World Trade Center tower flew directly over Indian Point.

20 million people within the 50 mile radiation zone of Indian Point

Why Wind Power?

- Emissions Free = *No Pollution*
- Fuel Free = *Energy Independence*
- Fixed Price = *No price increases*
- Economic Development Tool
- Less Centralized =

  Reduced Terrorist Target



25% / yr Annual Growth

Wind Leaders:

1. Germany
2. United States
3. Spain
4. Denmark
5. India

Based on information supplied by International Energy Agency and the American Wind Energy Association.

Total (end of 2001): nearly 24,000 MW

90% reduction in Levelized Costs from 1980

1979: 40 cents/kWh

2003:
4-7 cents/kWh

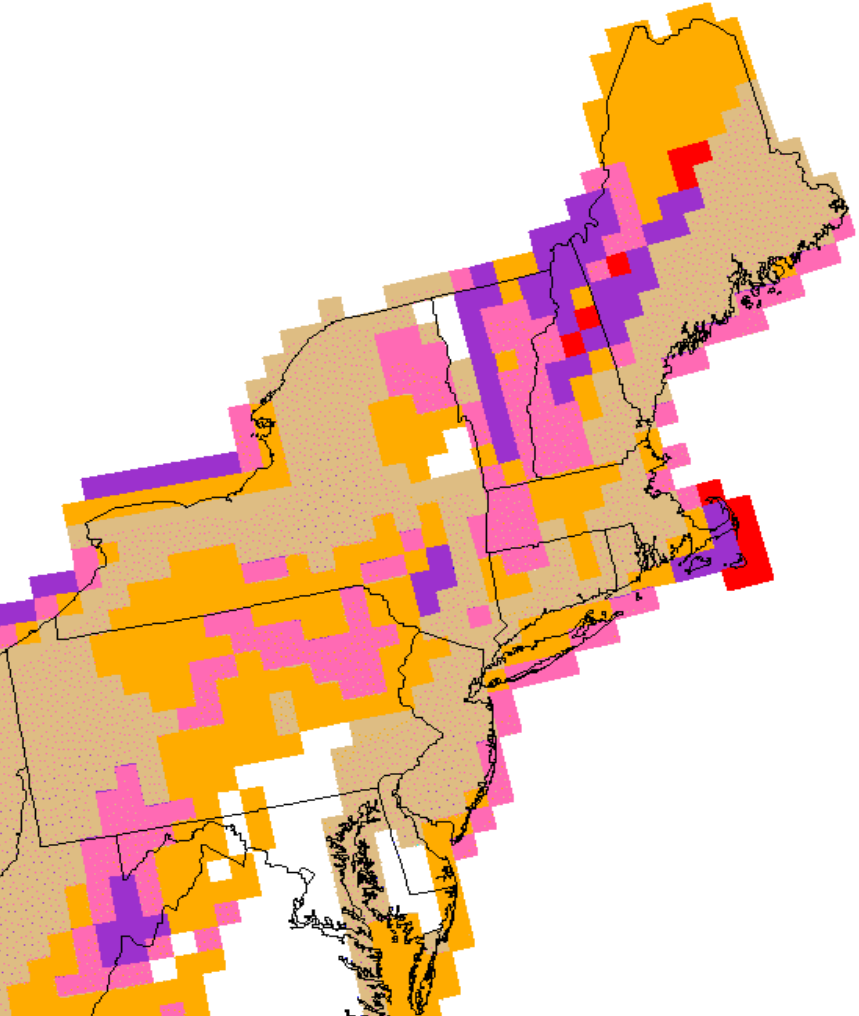
- **Increased Turbine Size**
- **R&D Advances**
- **Manufacturing Improvements**

2010:
2.5-4.5 cents/kWh
(2003 wholesale cost of conventional electric)

One 1.5 MW Wind Turbine:

- Is about the same height as a Redwood tree
- Reduces CO2 emissions by 6 million lbs/year
- Has the same pollution impact as
  Planting **320,000 trees.**

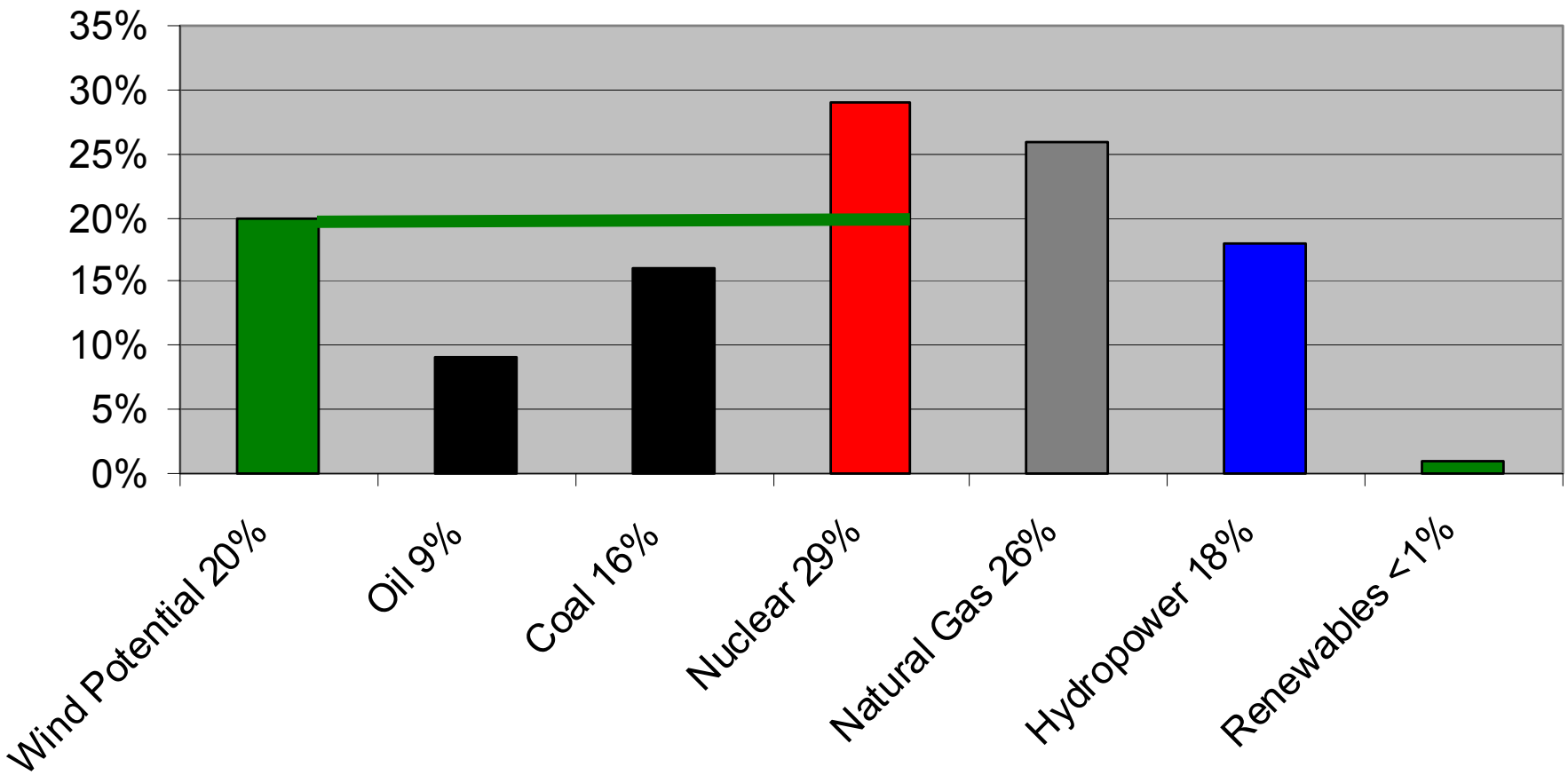
NYS Wind Resource



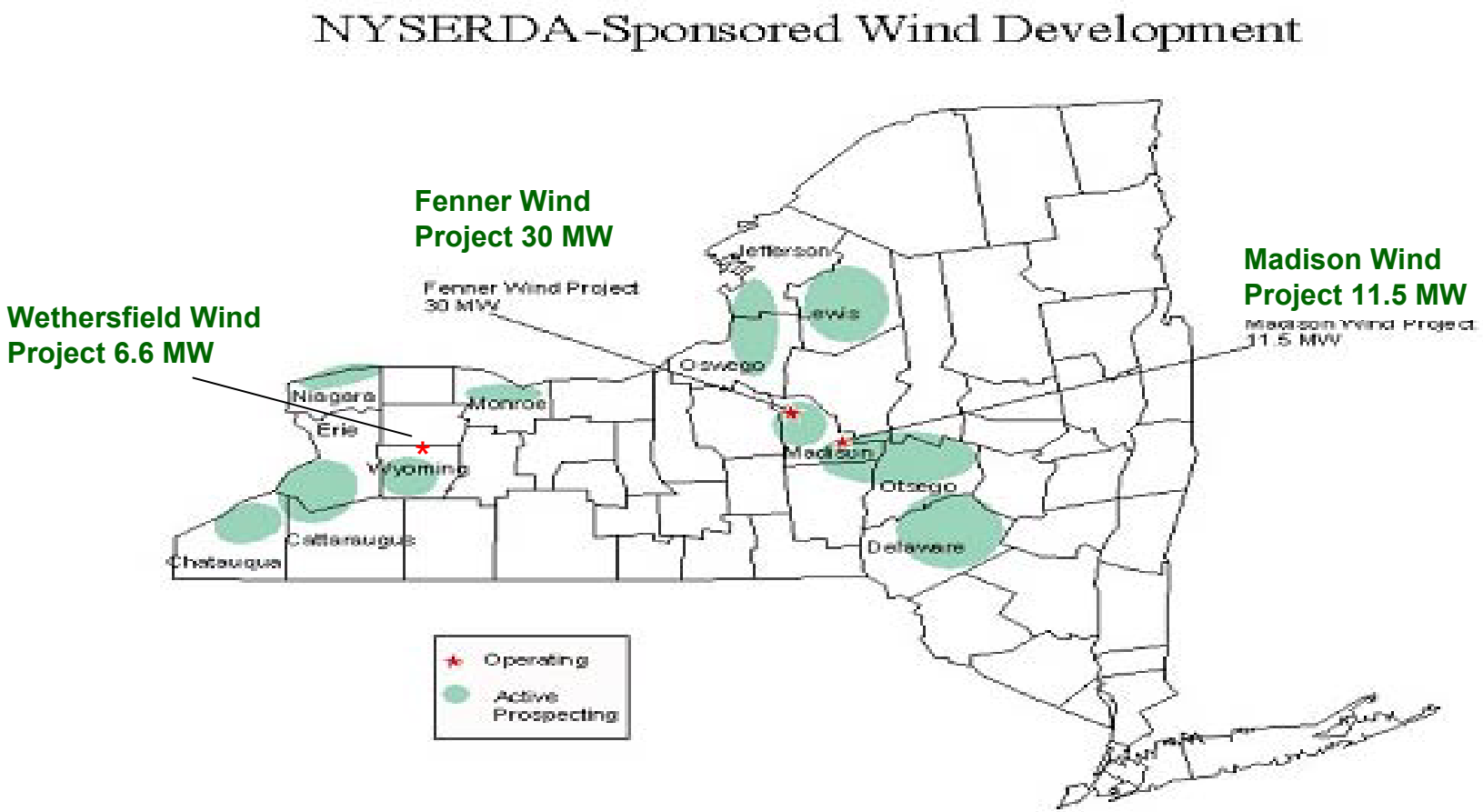
NYS has wind resources for more than 5,000 MW of new land-based wind turbines (10% of NYS total energy usage) plus another 5,200 MW of off-shore wind.

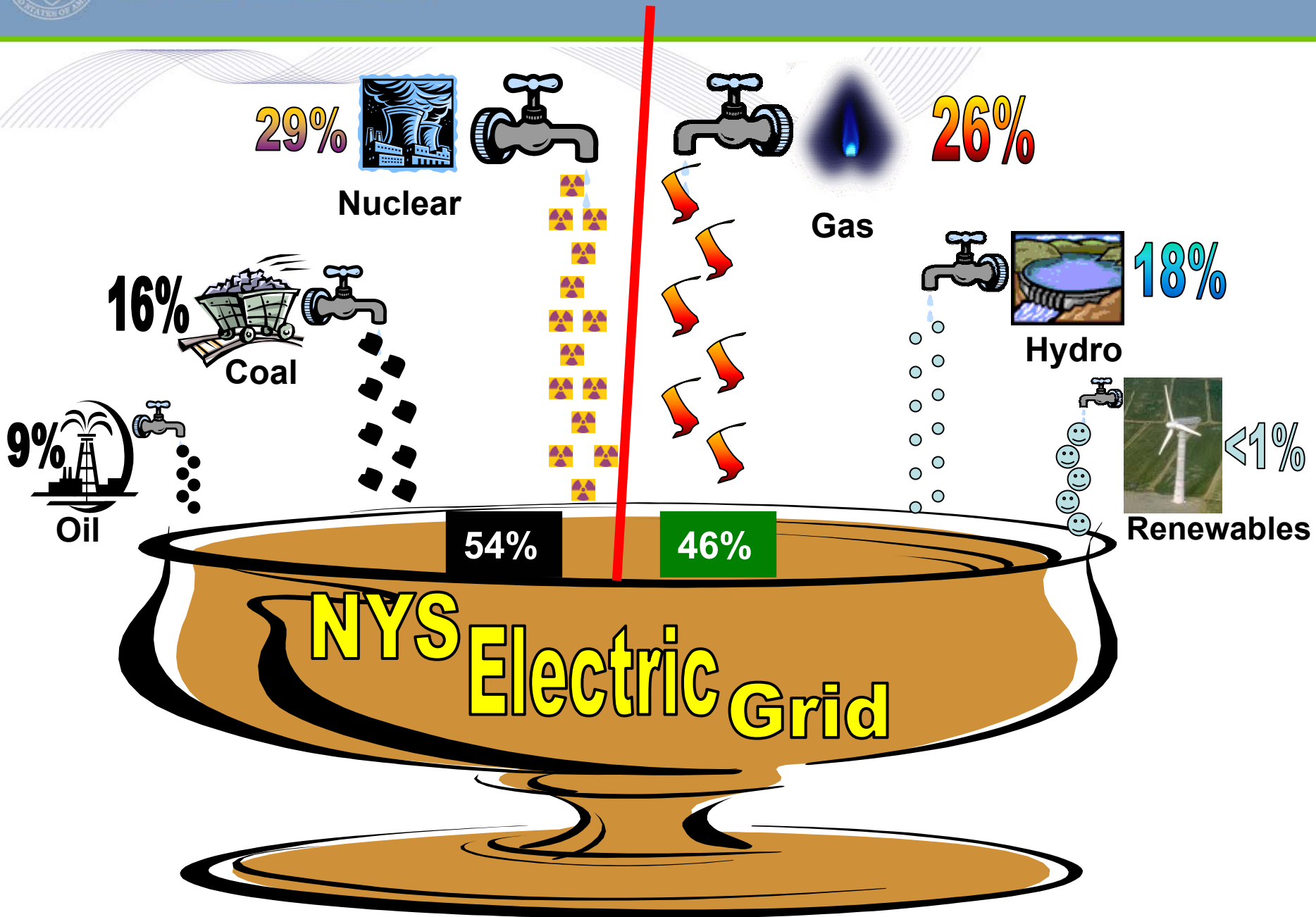
Total NYS Potential: 20%

NYS Electric Generation Mix



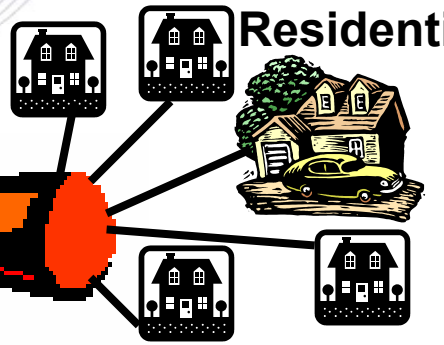
Current (48 MW) & Near Term (317 MW) NYS Wind Projects




29%
Nuclear
26%
Gas
16%
Coal
18%
Hydro
9%
Oil
<1%
Renewables
54%
46%
NYS Electric Grid

Energy Users

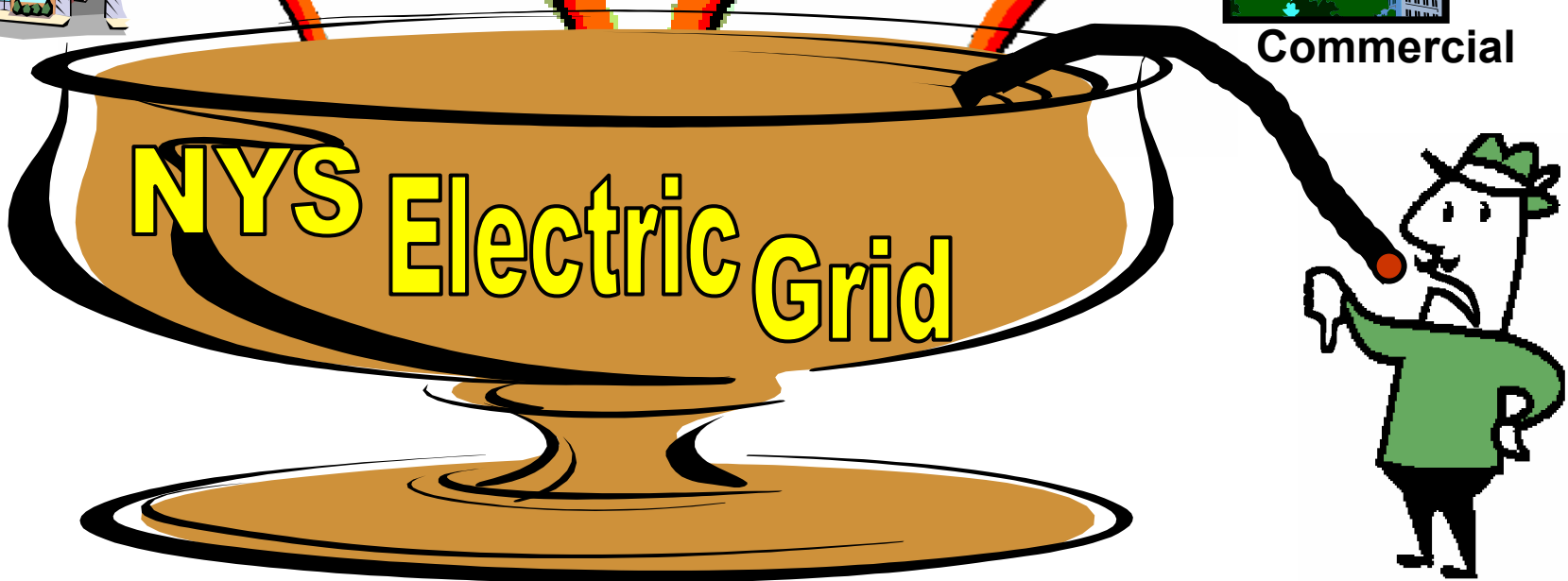
Industry

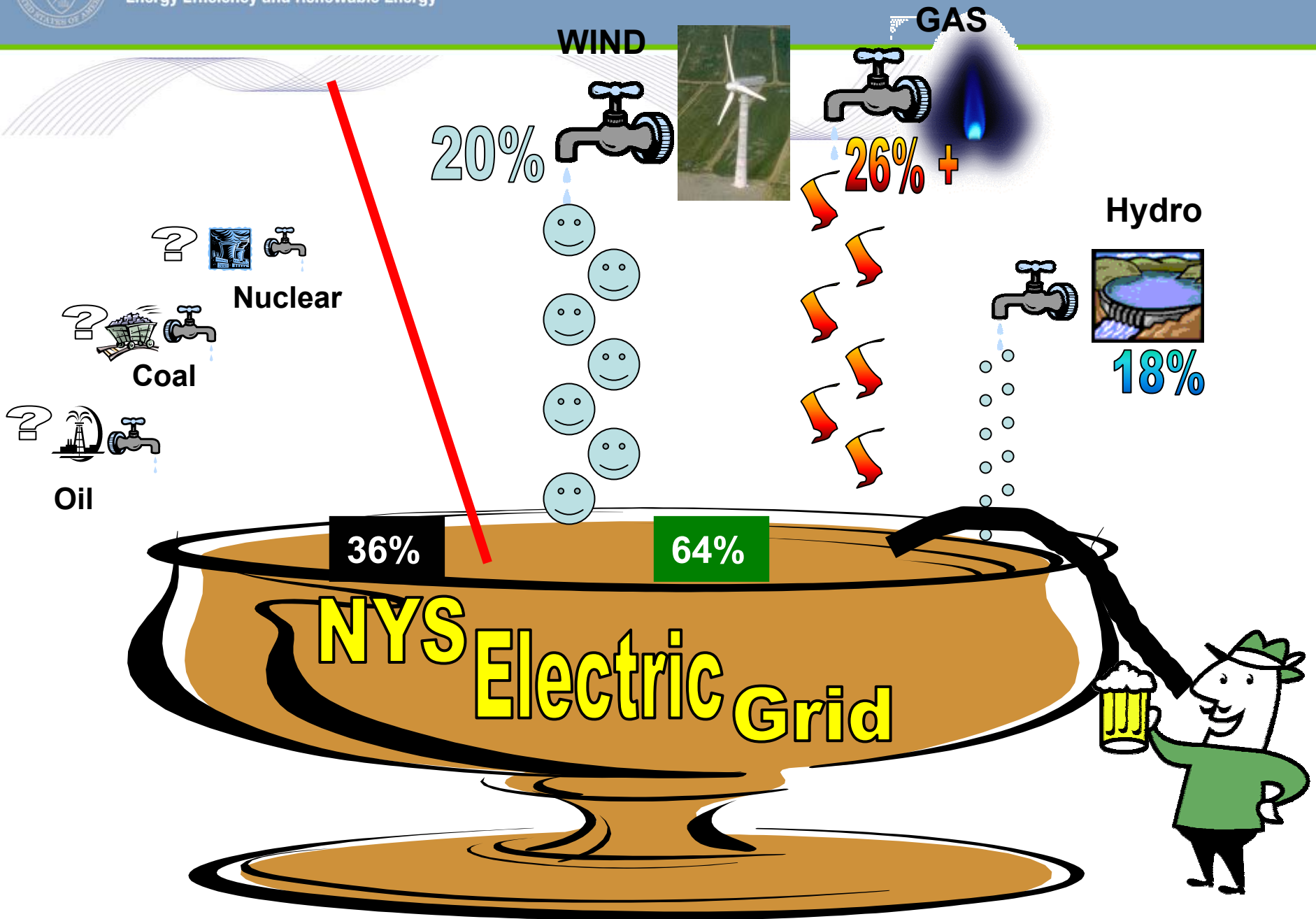


Residential

Small Business

Commercial




WIND
GAS
20%
26% +
Hydro
18%
Nuclear
Coal
Oil
36%
64%
NYS Electric Grid

Wind Premium Costs

RESIDENTIAL

- $5 per month buys 200 kwh for a home
- Avg NYS home uses ~500 kwh / month
- 100% wind power = $12.50 per month

COMMERICAL

- 2 cents per kwh for a % of usage
- Price reductions for large purchases (over 4 million kwh / year)

Choices