



SENECA
NATION OF INDIANS



SENECA ENERGY

***“EMPOWERING THE SENECA
NATION”***

Anthony Giacobbe – Director Seneca Energy

Anthony Memmo – Project Manager

Wes Jackson – Project Manager

Seneca Nation of Indians

Locational Map of the Territories



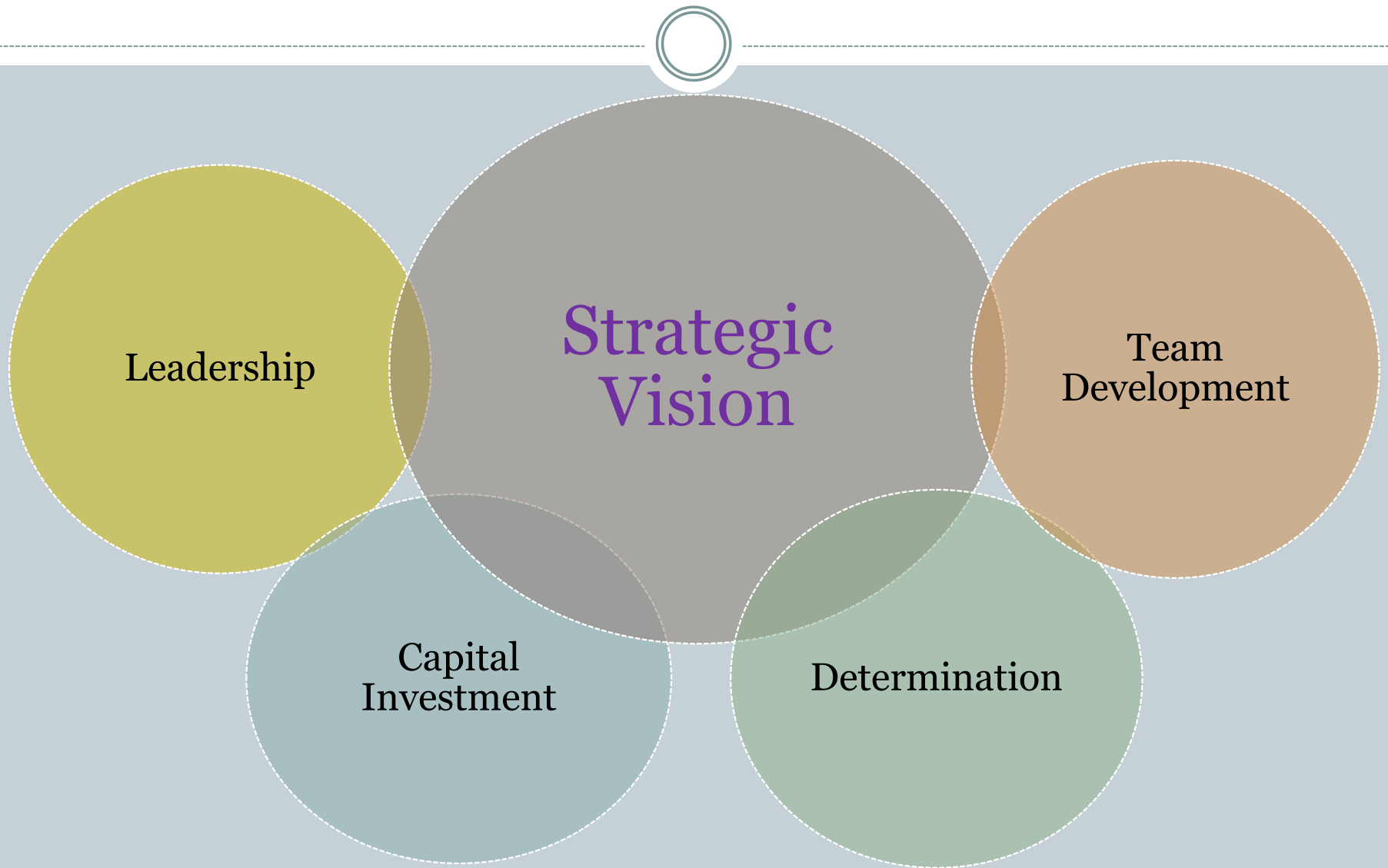
Mission Statement



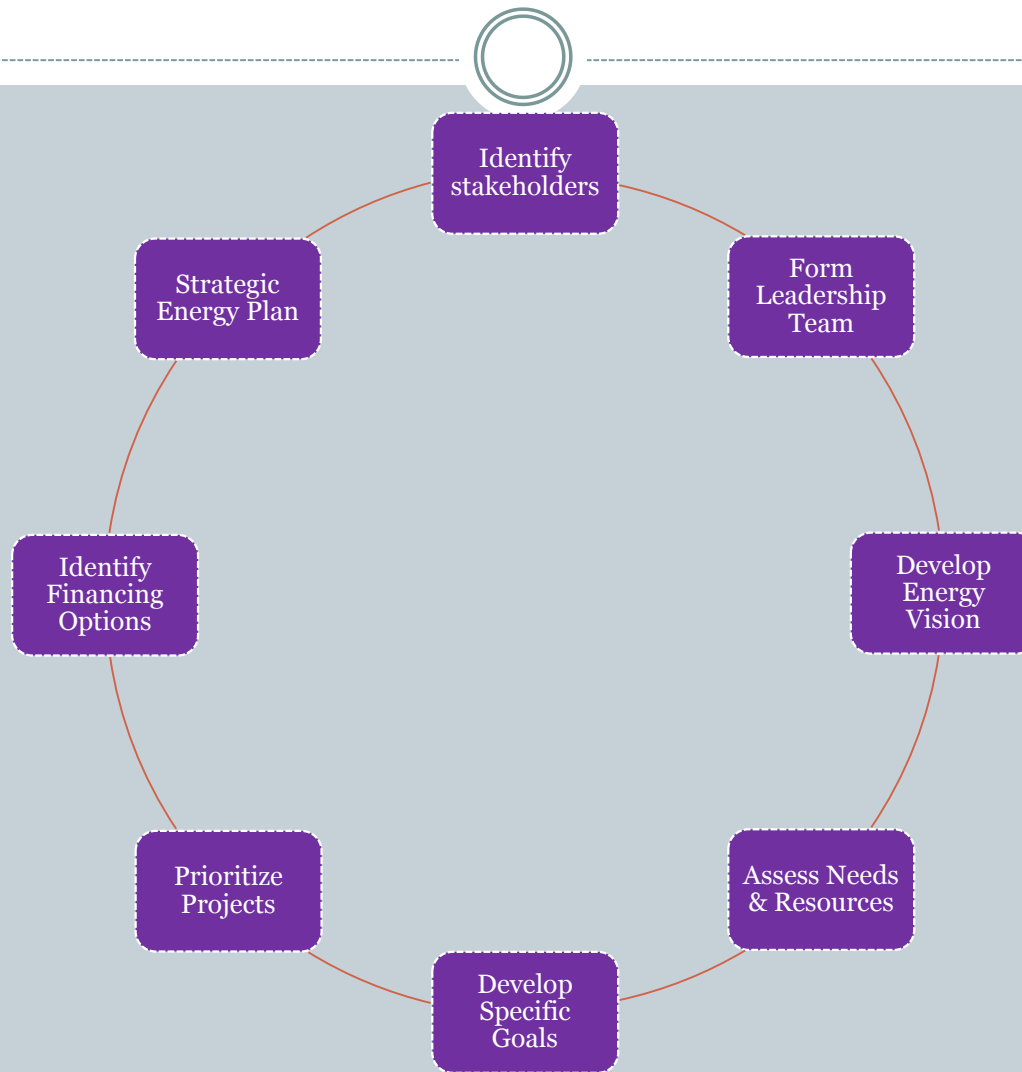
- **The MISSION of Seneca Energy** is to ensure the security, prosperity and independence of the Seneca Nation by building a sustainable energy platform and lowering energy costs for the Nation and its residents.



Framework for Success



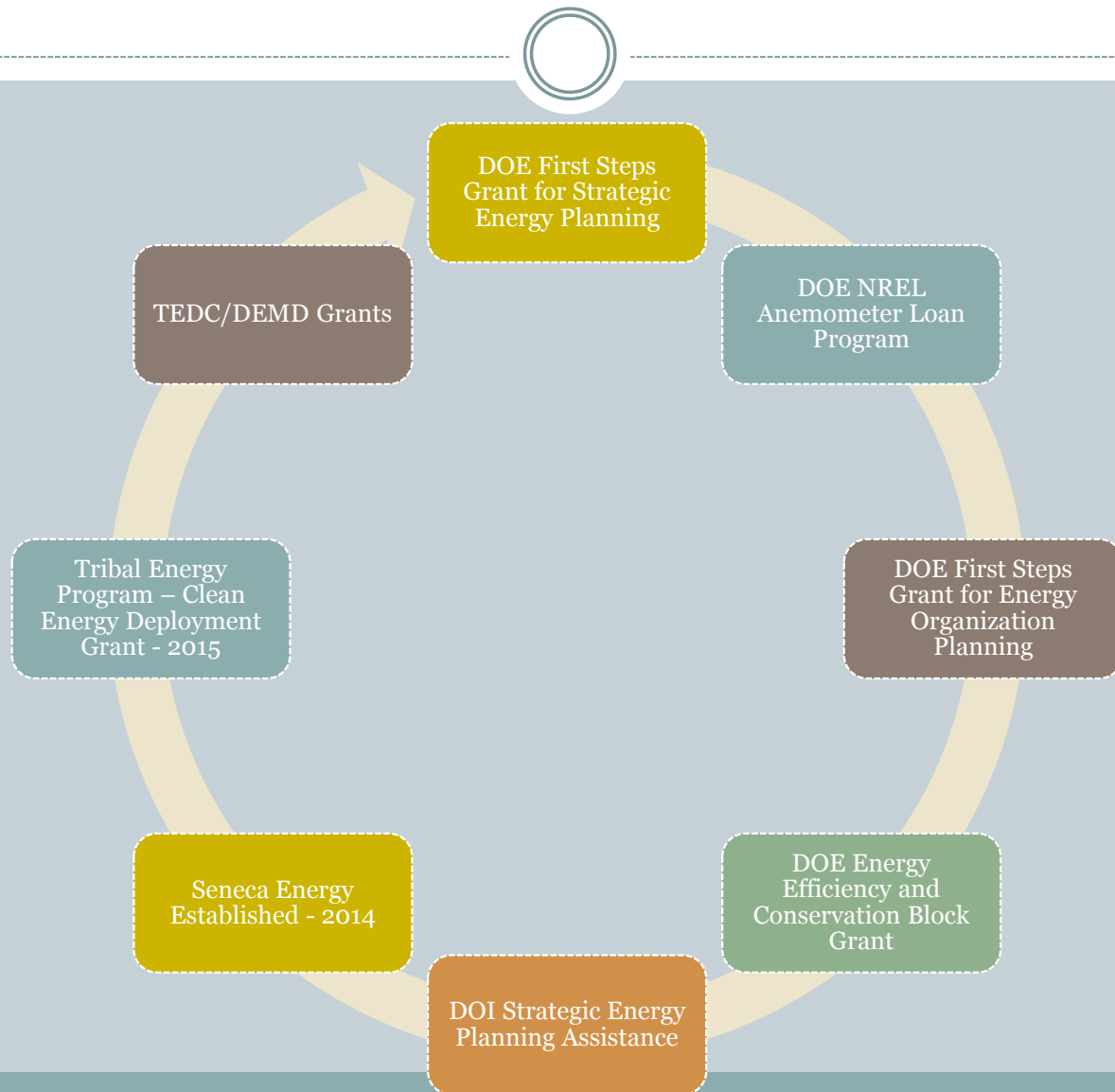
Strategic Planning



Strategic Planning



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Energy Vision



Energy Sustainability

Reduce Energy Costs

Improve Infrastructure

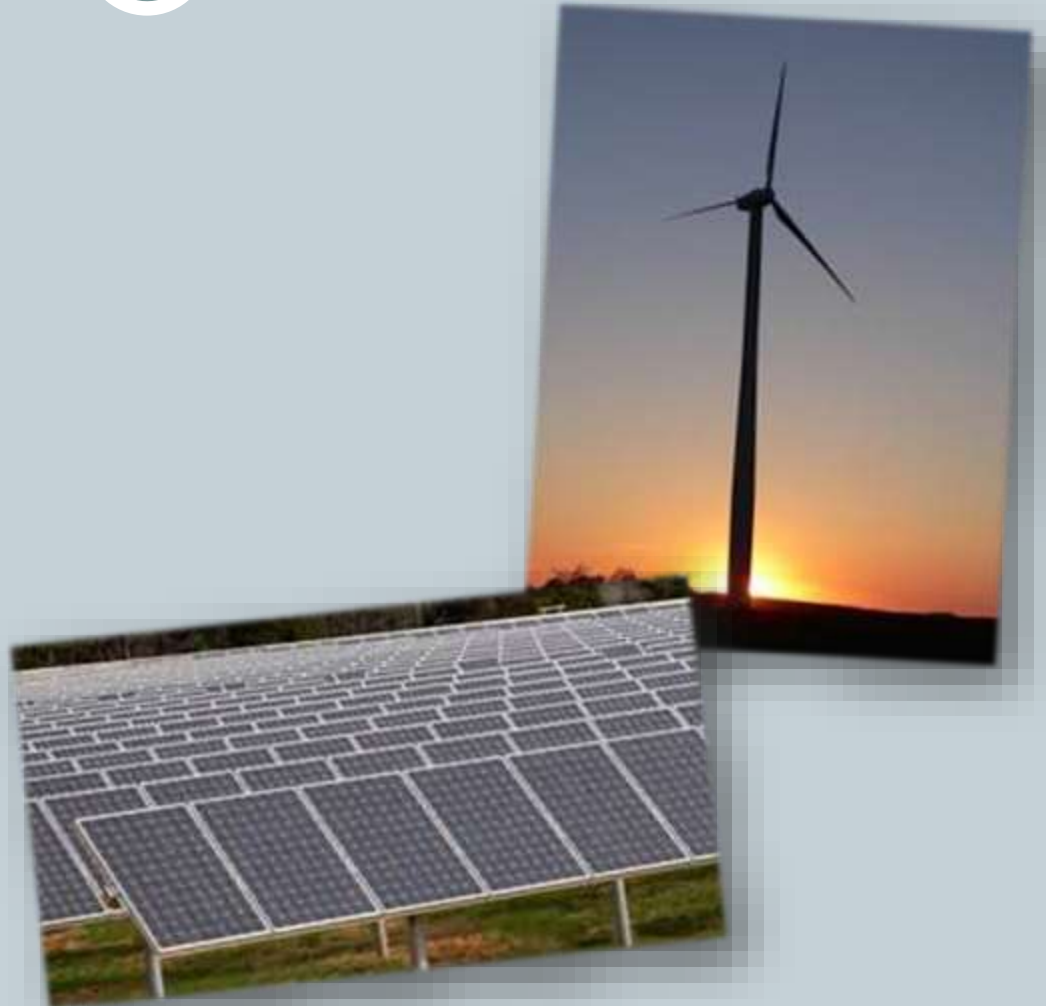
Economic Development

Environmental Benefits

Utilize Natural
Resources

Workforce Development

Energy Information
“Hub”



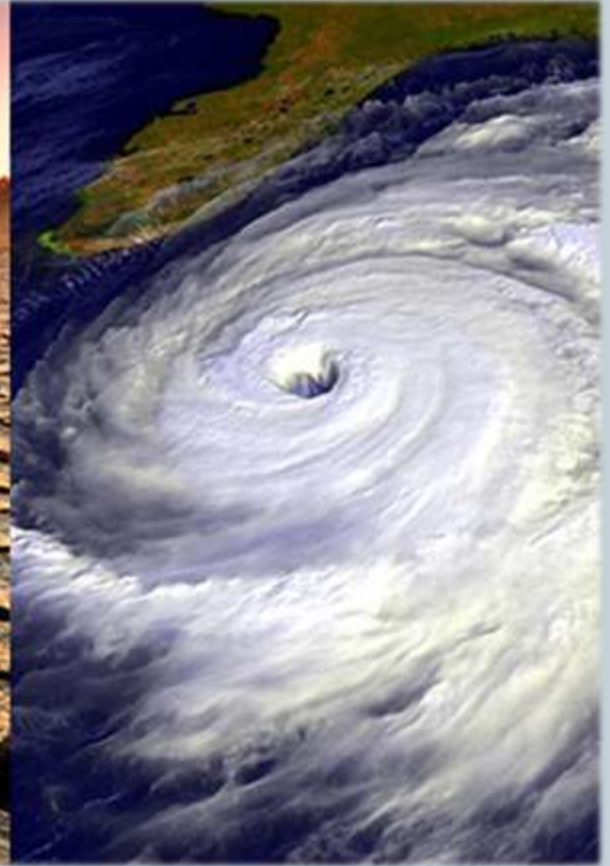
Climate Change



Scientific evidence for warming of the climate system is unequivocal.

- Intergovernmental Panel on Climate Change
(NASA – Climate Change Website)

Climate Change Effects



Climate Change Evidence



- Global Temperature Rise – 1.62 degrees F increase since late 19th century
 - Most occurring last 35 yrs.
- Warming Oceans – Top 2,300' warming > 0.4 degrees F since 1969
- Shrinking Ice Sheets – Greenland lost an avg. of 286B tons of ice/year & Antarctic lost 127B tons of ice per year b/w 1993-2016
 - Antarctic rate has tripled in last decade
- Glacial Retreat – Rockies, Alps, Alaska

Climate Change Evidence

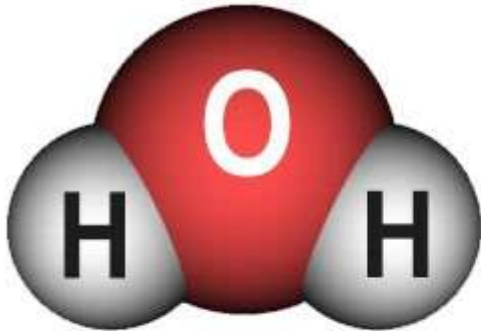


- Decreased Snow Cover – Over past 5 decades there has been less spring snow cover and it's melting earlier
- Rising Sea Levels – Rose 8" in last century
 - Rate the last two decades is nearly double
- Extreme Events – “Rain bombs”, Record highs increasing, record lows decreasing since 1950
- Ocean Acidification – Acidity of ocean surface has increased by 30% since Industrial Revolution
 - Since late 1700's/early 1800's

Don't ignore the signs

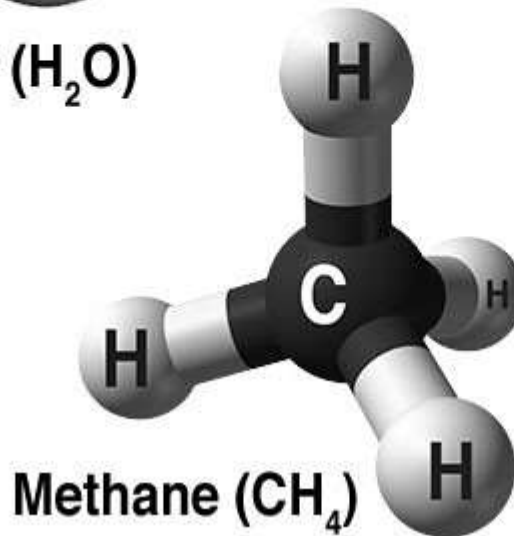
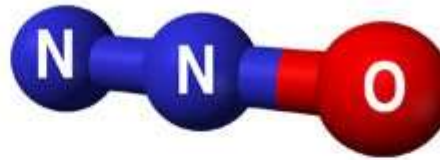


Greenhouse Gas Emissions

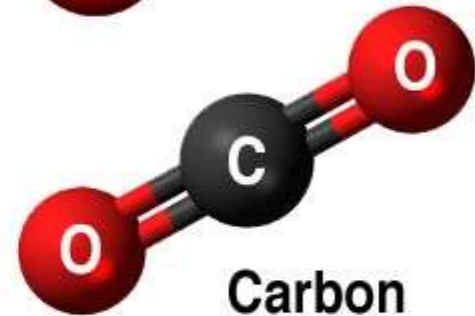


Water vapor (H_2O)

Nitrous oxide (N_2O)



Methane (CH_4)



Carbon dioxide (CO_2)

Seneca Project GHG Reductions



Over 25 year project lifecycle

- Reduce ~120MM lbs. of Carbon Dioxide (CO₂)
- Reduce ~2.4MM lbs. of Sulfur Dioxide (SO₂)
- 255,000 lbs. of Nitrous Oxide (NO₂)
- 1,380,787 milligrams of mercury vapor

Project Implementation Phase I



Feasibility / Public
Outreach

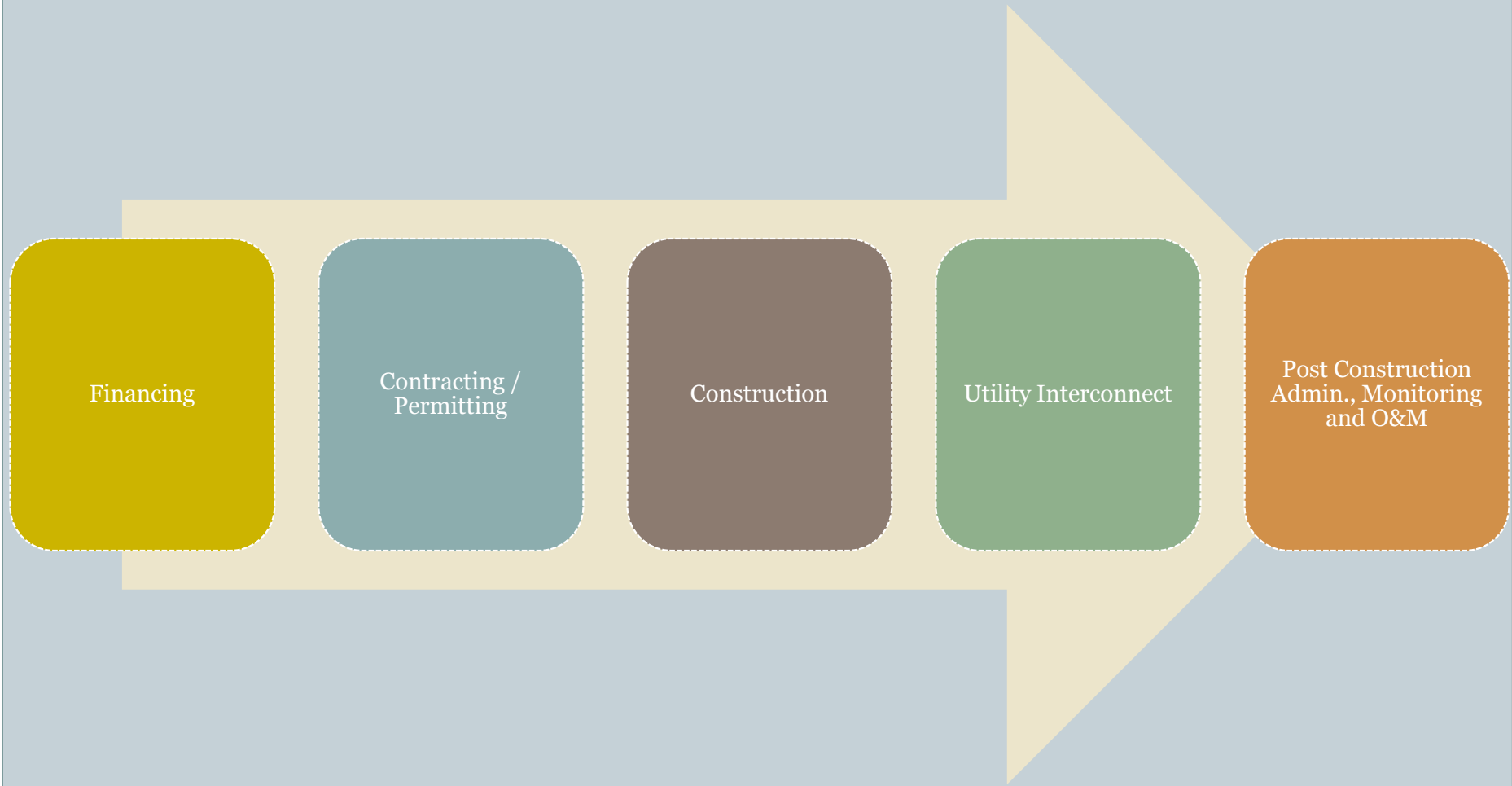
Leadership
Presentations
“Champion(s)”

Technology /
Resource Evaluation

Dept. / Agency
Coordination

Site Selection

Project Implementation Phase II



1.5MW Vensys Wind Turbine

Highlights

- Investment: \$3.5MM
 - \$2.5MM in grants
 - DOE \$1.5MM/NYSERDA \$1MM
- Commissioned: 3/8/17
- Power: Virtually Net-metered
- 7.5MM/kWh produced
- ~\$575,000 revenue generated
- Community Benefits - \$25 monthly credit
- Project payback: ~8 years

Generation/ Emissions Stats

- ~3.5MM/kWh annually
- 486 homes powered/yr.
 - NYS 7,200 kWh/avg.
- 4.3MM lbs./CO₂ reduced annually
- 147 cars off road/annually

Turbine Construction



Rotor Fly



2MW Solar Array

Highlights

- Investment: \$3.4MM
- Commissioned: 10/16/17
- Power: Virtually Net-metered
- Project payback: ~11 yrs.
- Financing:
 - Seneca Nation funded construction
 - NYSERDA Grant: ~650,000
 - USDA - RUS Loan (currently reviewing)







Additional Projects



Project Highlights

- Catt Fish Hatchery PV – 8 kW
- Allegany Fish Hatchery Microgrid/PV – 13 kW
- Oak Tree Housing PV – 10 kW
- LED installations, EE measures
- Planning Bingo Hall PV – ~600 kW
- Microgrid feasibility study
- Natural gas well P&A project (27 wells since 2013)
- In process of planning a 2MW-5MW community solar project
- Residential solar loan program



Times Are Changing



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