



SENECA
NATION OF INDIANS



SENECA ENERGY

***“EMPOWERING THE SENECA
NATION”***

Anthony Giacobbe – Director Seneca Energy

Seneca Nation of Indians

Locational Map of the Territories



Seneca Energy Mission Statement



“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”

Energy Vision / Pillars of Success

Energy Sustainability

Reduce Energy Costs

Improve Infrastructure

Economic Development

Environmental Benefits

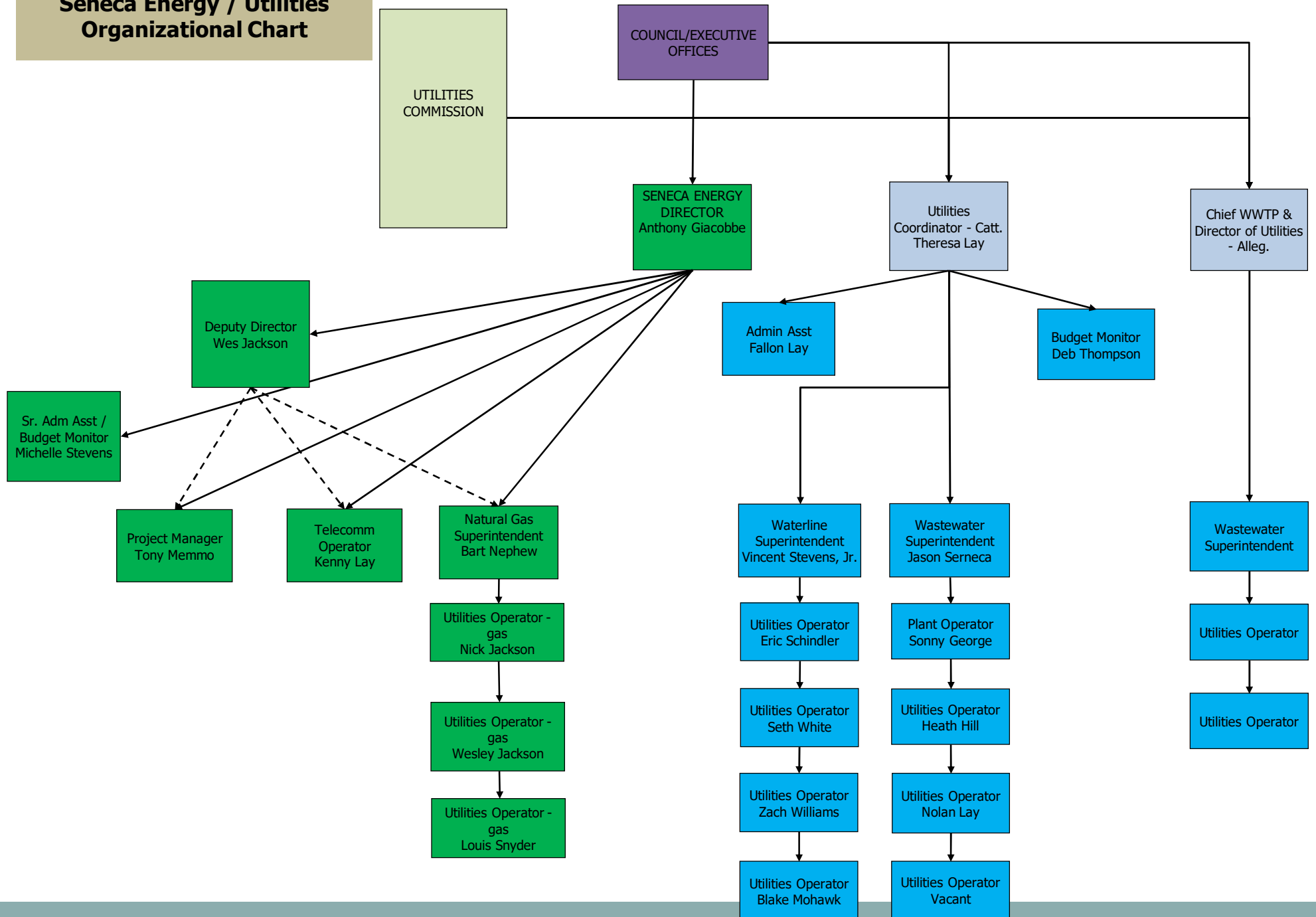
Utilize Natural
Resources

Workforce Development

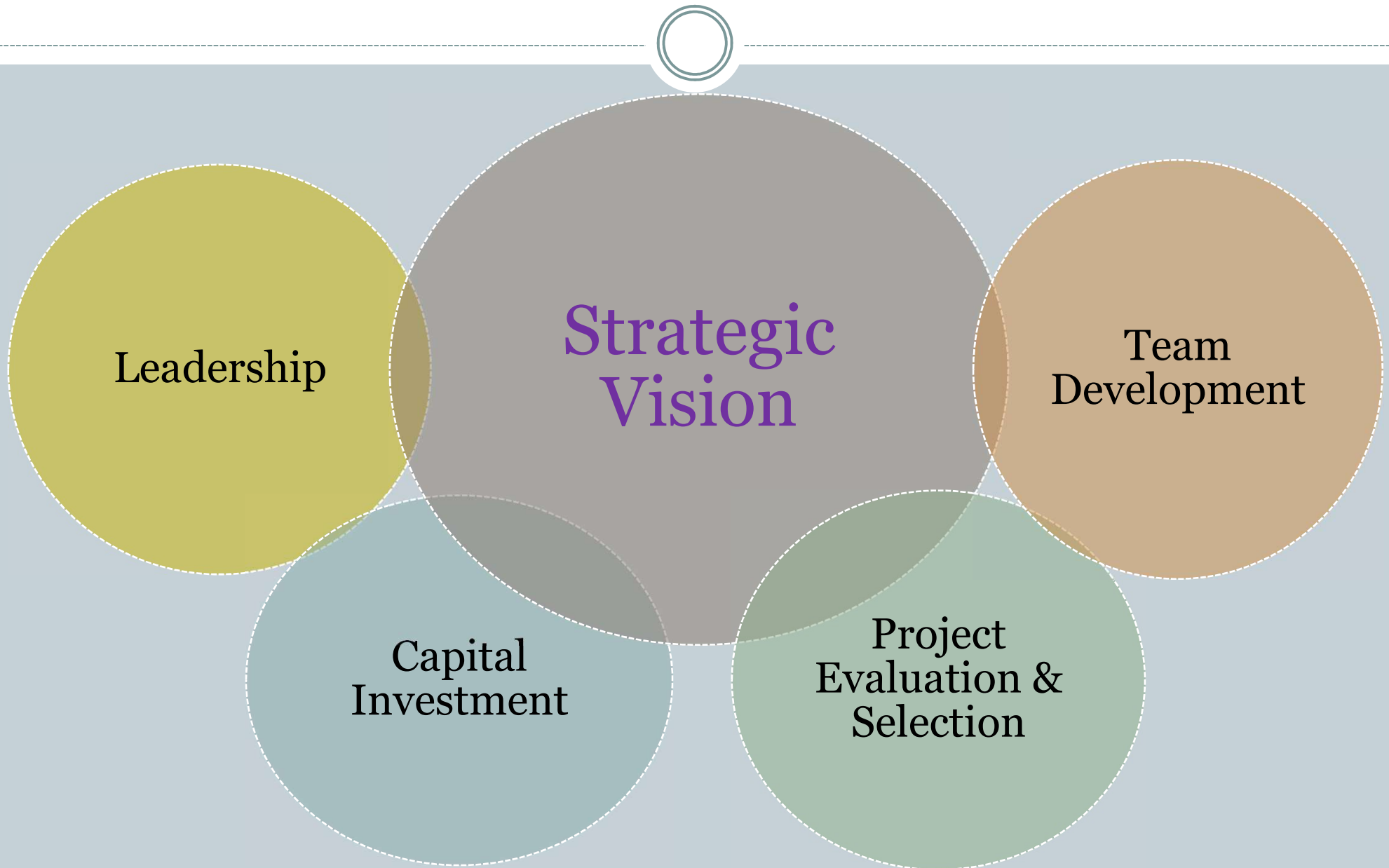
Energy Information
“Hub”



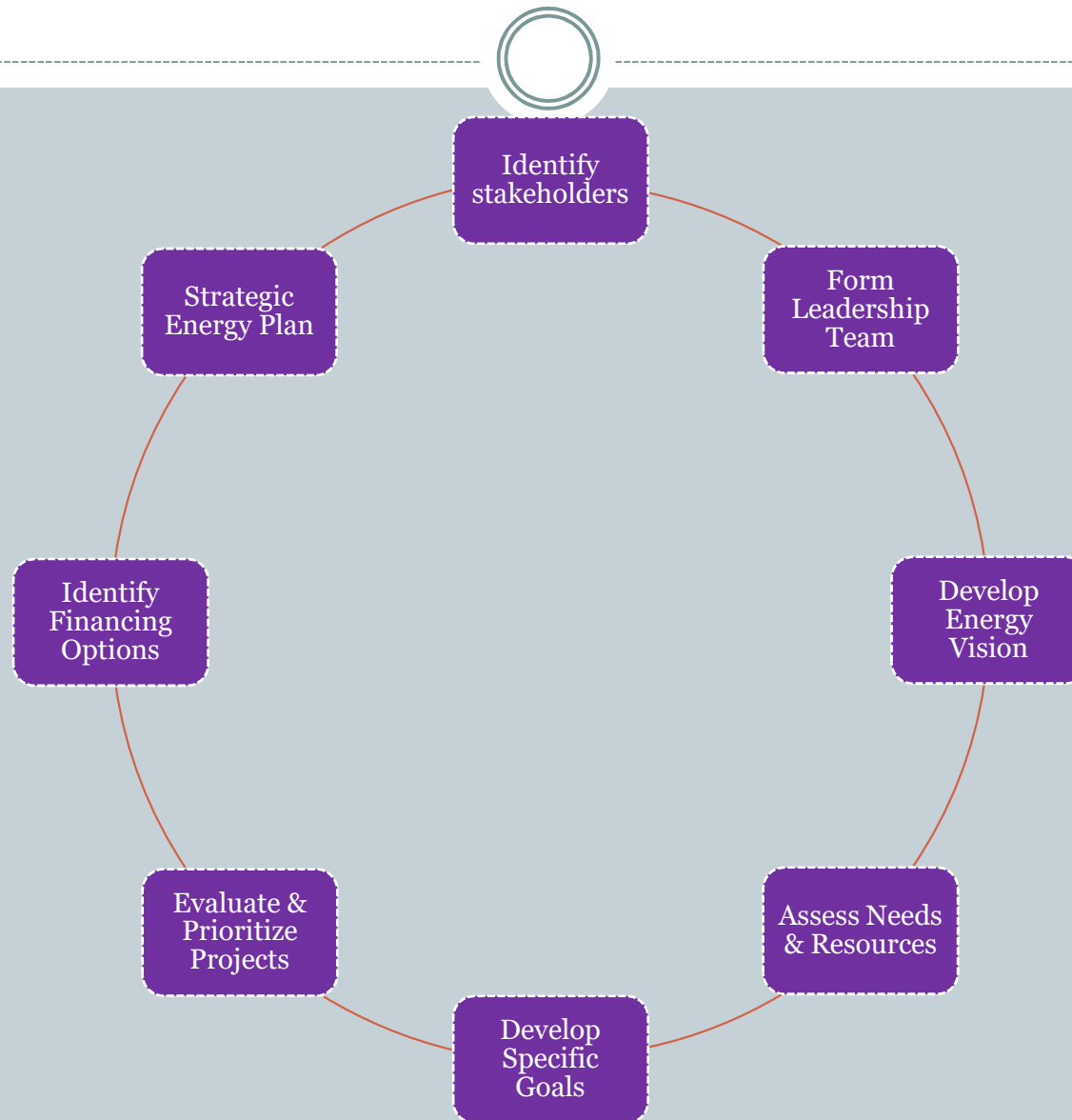
Seneca Energy / Utilities Organizational Chart



Framework for Success



Strategic Planning



Critical Decision Criteria



- ROI / IRR
- Sustainability and Resiliency
- Sovereignty and Independence
- Capital Investment and Funding Sources
- Nation Member Interest and Acceptance
- Economic Development
- Workforce Development

Decision Matrix



| % | 15.0% | 12.5% | 10.0% | 7.5% | 12.5% | 15.0% | 10.0% | 10.0% | 7.5% | 100% | |
|-----------------------------|------------------|-----------------------------|---------------------------|----------------|--------------------------------|------------------------------------|---|--------------------------|---------------------------|--------------|----------------------|
| <u>Option</u> | <u>ROI (PVI)</u> | <u>Gross Margin (Oper.)</u> | <u>Capital Investment</u> | <u>O&M</u> | <u>Energy \$ Saved for SNI</u> | <u>Energy Sovern. (Dependence)</u> | <u>Nation Employment & Career Development</u> | <u>Public Acceptance</u> | <u>Time to Completion</u> | <u>Score</u> | <u>Weighted Avg.</u> |
| NG Infrastructure | | | | | | | | | | 0 | |
| Wind Turbine | 7 | 7 | 5 | 8 | 8 | 3 | 5 | 10 | 5 | 6 | |
| Alleg. Solar | | | | | | | | | | 0 | |
| NG Exploration & Production | 5 | 4 | 2 | 9 | 2 | 2 | 3 | 2 | 4 | 3 | |
| Microgrid | | | | | | | | | | 0 | |
| Geothermal | | | | | | | | | | 0 | |
| Solar Array | | | | | | | | | | 0 | |
| Biomass | | | | | | | | | | 0 | |

| <u>Category</u> | <u>Linguistic Values</u> | | | <u>Numerical Values</u> | | |
|-----------------------------|--------------------------|----------------|-----------------|--|------------------|-------------------|
| | <u>2, 3, 4</u> | <u>5, 6, 7</u> | <u>8, 9, 10</u> | <u>2, 3, 4</u> | <u>5, 6, 7</u> | <u>8, 9, 10</u> |
| ROI (PVI) | Good | Better | Best | > \$1 - \$1.25 | \$1.50 | \$1.75 - \$2 |
| Gross Margin | Adequate | Good | Excellent | < 30% GPM | 30% GPM | > 30% GPM |
| Capital Investment | High | Med | Low | > \$6 Mil | \$3-\$6 Mil | \$1-3 Mil |
| O&M | High | Med | Low | > \$150K/yr. | \$75K-\$150K/yr. | \$25K - \$75K/yr. |
| Energy \$ Saved for SNI | Adequate | Good | Excellent | 50K - 250K/yr. | 250K - 500K/yr. | > 500K/yr. |
| Energy Sovern. (dependence) | High | Med | Low | Nat. Res./EA/Legal - 2 wk comment period | | |
| Public Acceptance | Low | Med | High | Nat. Res./EA/Legal - 2 wk comment period | | |
| Nation Employment | Current | > 5 | > 10 | Current | > 5 | > 10 |
| Time to completion | LT | MT | ST | > 5 yrs. | 3-5 yrs. | 1-3 yrs. |

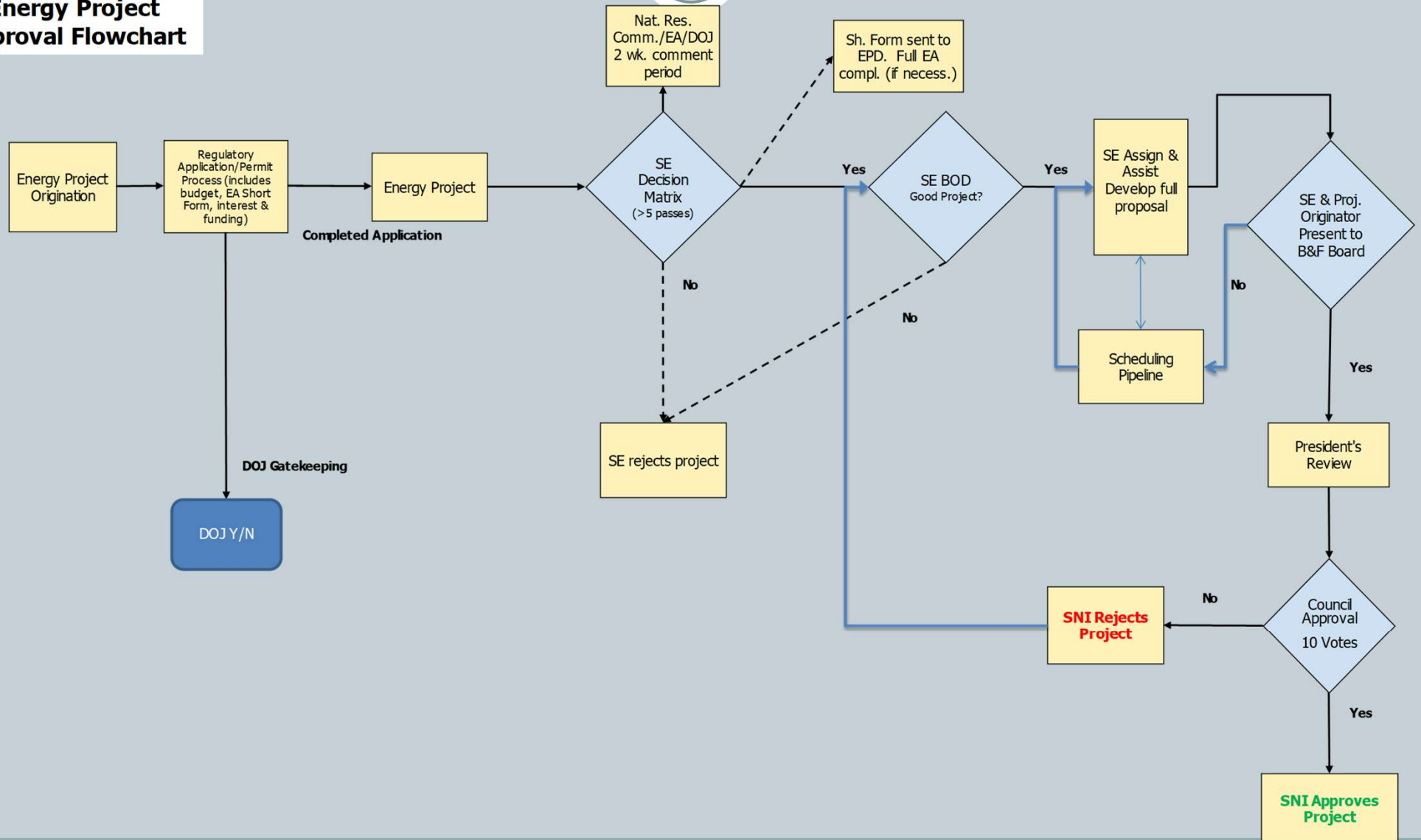
Project Flowchart



- Project origination to project approval
- Includes multiple decision points:
 - Decision Matrix
 - Regulatory Permitting Process
 - ✦ Seneca Energy, EPD, THPO, Legal, etc.
 - SE BOD Approval
 - B&F Committee Approval
 - Seneca Nation Council Approval

Project Flowchart

Energy Project Approval Flowchart



Project Implementation Phase I



Feasibility / Public
Outreach

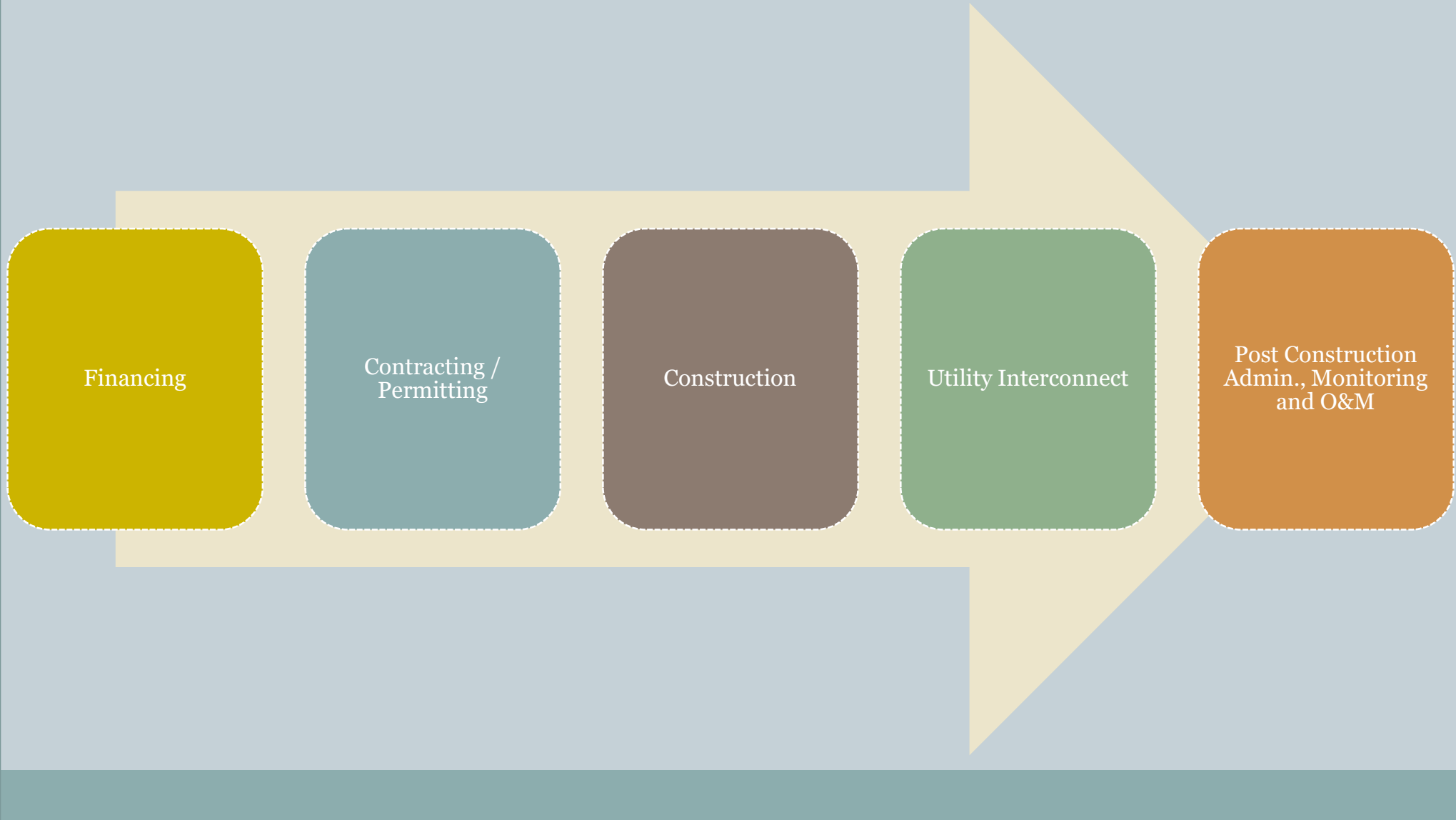
Leadership
Presentations
“Champion(s)”

Technology /
Resource Evaluation

Site Selection

Dept. / Agency
Coordination

Project Implementation Phase II



Seneca Energy Project Overview



Project Highlights

- 1.5 MW Wind Turbine / 2 MW solar array
- 52 Mile Fiber Broadband Network
- Operating 12 miles of natural gas distribution line
- Expanding natural gas dist. system 3.5 miles
- Residential Solar & Generator Programs
- Various PV installations
- LED Installations
- Negotiate / Administer various ROWs w/ Investor-Owned Utilities



Cattaraugus Fiber Broadband Project



Project Highlights

- 52-Mile Fiber Broadband Project
- Prior internet options were satellite and hotspots
- Spent \$3.5MM on pole make-ready costs
- Replaced 260 NGRID utility poles on Terr. (25% of poles on terr.)
- Crossed I90; Crossed two RR's
- To date, connected 725+ residents and businesses
- Inventory mgmt., construction mgmt., processing payments
- Partnered w/ a regional ISP - construction, networking, technical support and billing

Cattaraugus Fiber Broadband Map



Reconnect 1 & 2



Pole



Existing Tower



GPON Cabinet



Hut Location



PFSA



Fibercable



12 Fibers



24 Fibers



48 Fibers



72 Fibers



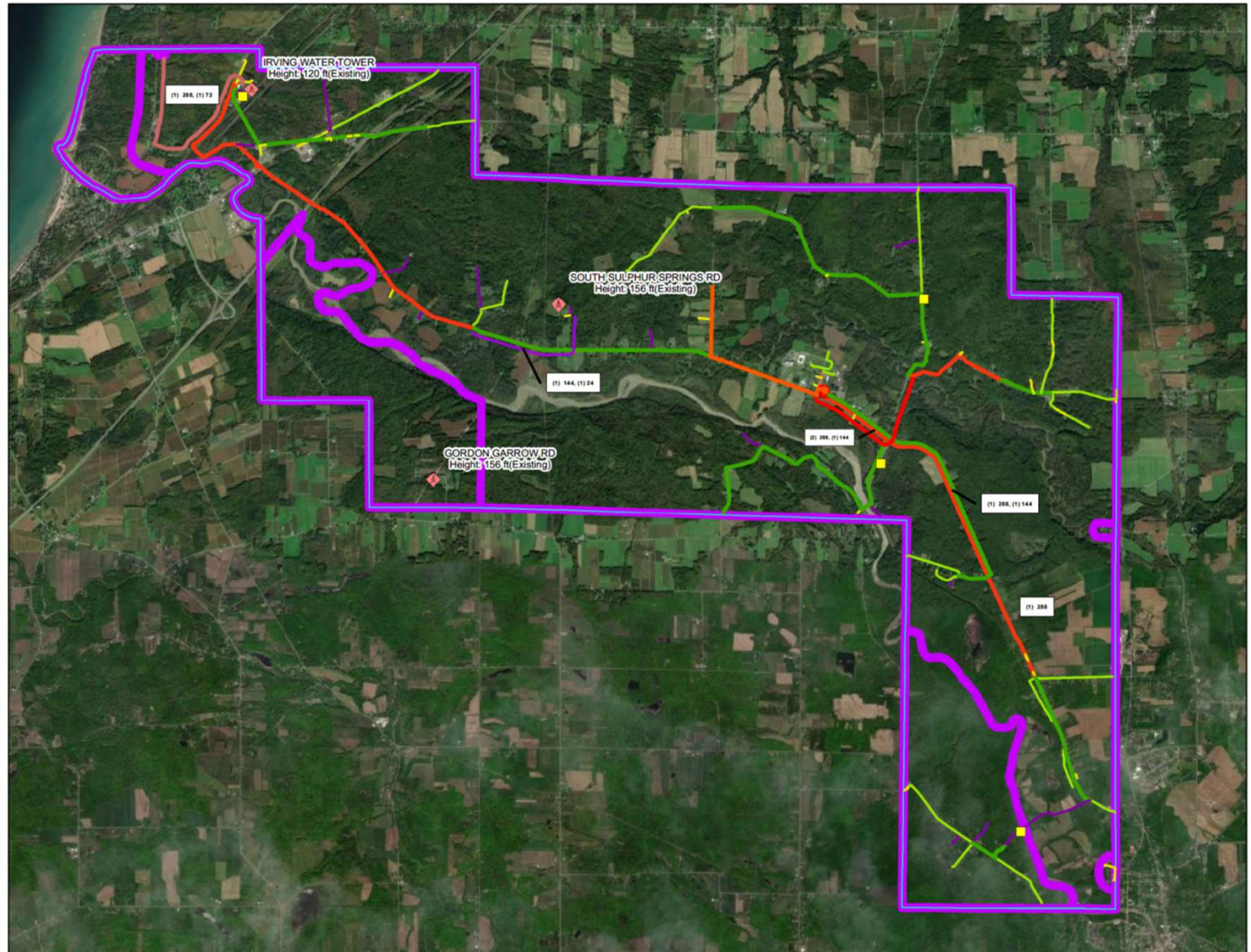
144 Fibers



288 Fibers



0 0.5 1 2
Miles



1.5MW Vensys Wind Turbine

Highlights

- Capital investment: \$3.5MM
 - \$2.5MM in grants
 - DOE \$1.5MM/NYSERDA \$1MM
- Commissioned: 3/8/17
- Power: Virtually net-metered
- ~\$3MM revenue generated to date
- Community benefits - \$25 monthly credit on electric bills
- Project paid back in ~8 years

Generation/ Emissions Stats

- ~25MM kWh produced since commissioning
- Equivalent of powering ~3,472 homes (7,200 kWh NYS avg.)

Turbine Construction



Rotor Fly



2MW Solar Array

Highlights

- Capital investment: \$3.4MM
- Power: Virtually net-metered
- Project payback: ~12 yrs.
- ~\$2MM revenue generated to date
- Financing:
 - Seneca primarily funded project
 - NYSERDA Grant: ~750,000





2MW Solar Array



Contact Info. / Questions?

Anthony Giacobbe
Director, Seneca Energy
anthony.giacobbe@sni.org



SENECA
ENERGY LLC