

Ownership Models and Economic Impacts of Wind Energy

Baker County Wind Summit
March 2009

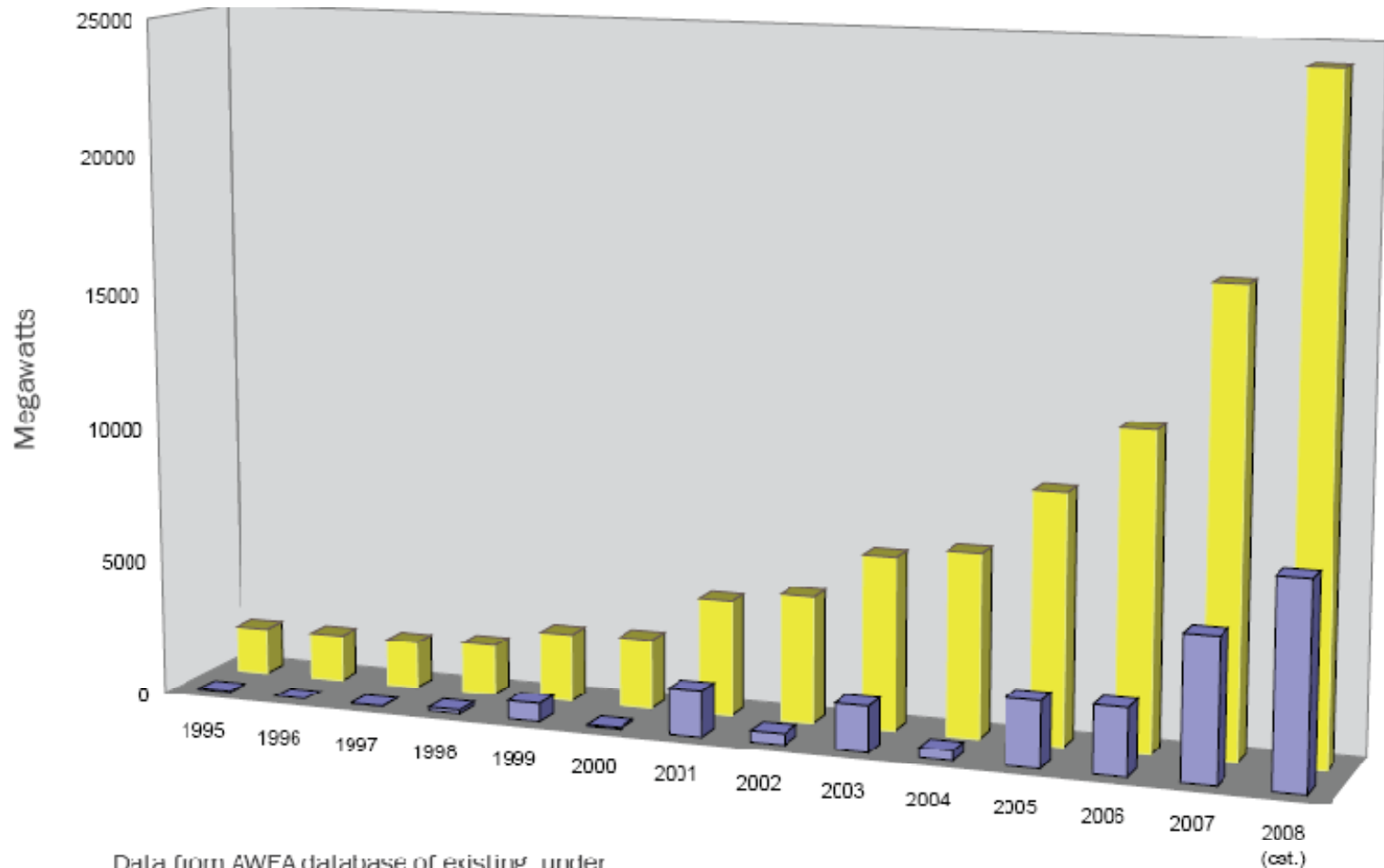


Oregon Power Solutions

A white wind turbine is visible in the upper right corner of the slide, set against a blue sky with light clouds. The turbine's nacelle and one of its blades are clearly visible.

- Established in 2003 to provide consulting and contracting services to wind energy industry
 - Located in Baker City, Oregon. 11 Employees.
- Currently developing 9 projects in Oregon

US Cumulative and Added Capacity



Data from AWEA database of existing, under construction and proposed wind power facilities

Oregon is Encouraging Renewable Energy Biased Toward Smaller Projects



- Business Energy Tax Credit (BETC) allows for a credit of 50% capital cost for wind power developments up to \$20 million. Alternatively, the credit may be transferred at approximately 33.5% for a lump sum payment
- Small Energy Loan Program through the Oregon Department of Energy, typically 15 year, 6.0% to 7.0% interest rate. Amounts up to \$20 million.
- Standard Contract for Qualifying Facilities.
 - 20 year contract for 10MW and under wind projects
 - Fixed pricing at utilities “avoided cost” for natural gas-produced electricity
- Added value to any property from the installation of a qualifying renewable energy system may not be included in the assessment of the property’s value for property tax purposes.
 - Does not apply to owner of the energy facility

Ownership Structures

A photograph of a white wind turbine with three blades, positioned on the right side of the slide. The background is a bright blue sky with soft, white clouds. The overall aesthetic is clean and professional, typical of a corporate or educational presentation.

- Commercial Wind
- Community Wind - Privately Financed
- Community Wind - Publicly Financed

Commercial Wind



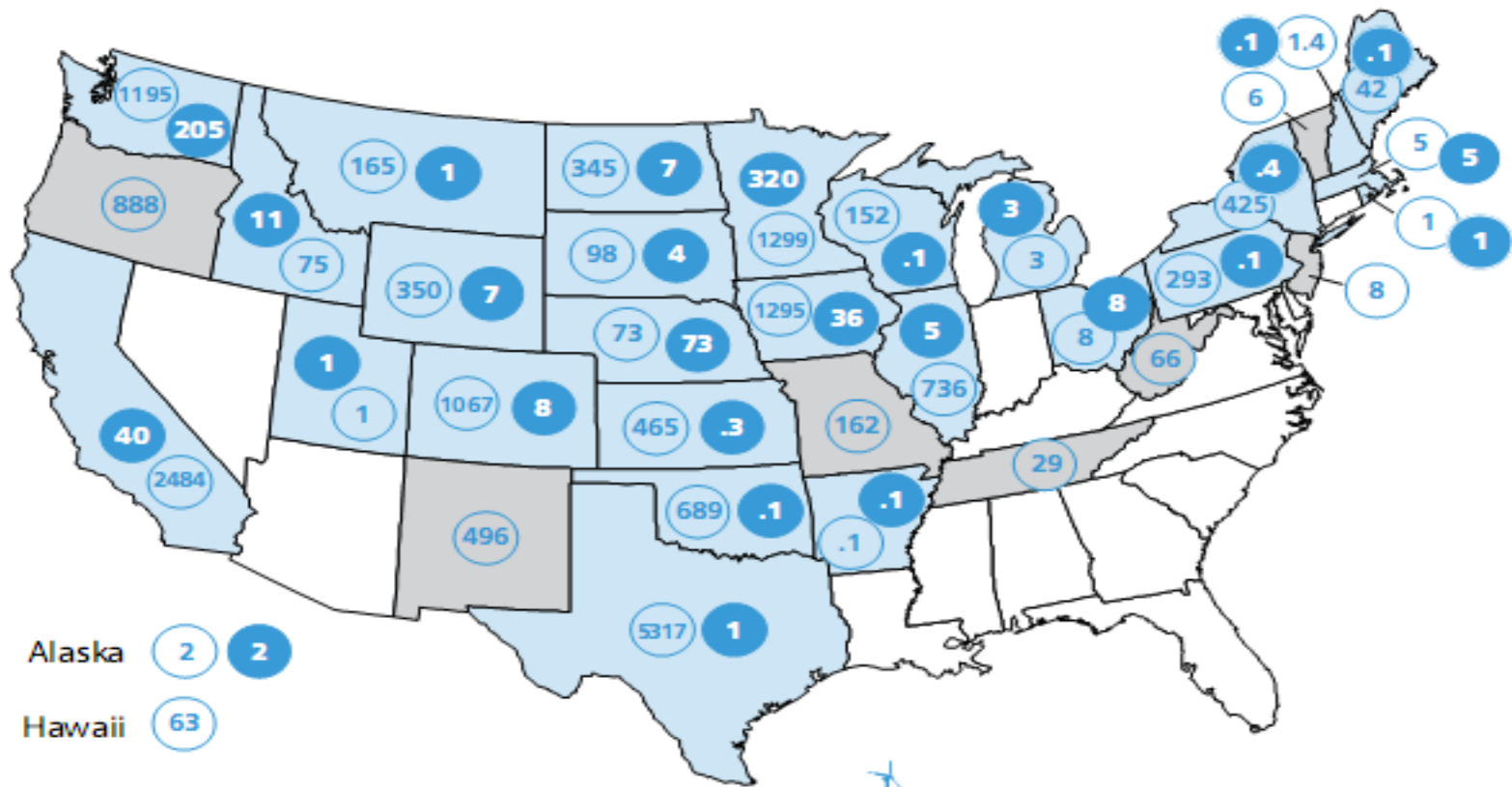
- Typically large utilities or developers owned by absentee corporate entities
- Accounts for greater than 95% of wind developed in the US
- Developments are typically greater than 50 megawatts

Community Wind



- Defined as locally owned, commercial-scale wind projects that optimize local benefits
- Locally owned means that one or more members of the local community has a direct financial stake in the project other than through land lease payments or tax payments
- Projects are typically smaller, less than 20 megawatts
- Many ownership models

Installed Wind Capacity



Alaska (2) (2)
 Hawaii (63)

- Community Wind States
- Wind Farm Only States
- 275 Community Wind (MW)
- 895 Total Wind Capacity (MW)



18,281 MW of Wind Installed in the U.S.
 736 MW is Community-Owned
 July 2008

Barriers to Community Wind



- **Diseconomies of Scale**
 - Levelized cost of a 10MW farm will be 15%-36% higher than a 200MW wind farm
- High upfront cost requires sophisticated investors which can utilize tax incentives
 - These investors require larger projects
- Transmission capacity limitations

Economic Benefits of Wind



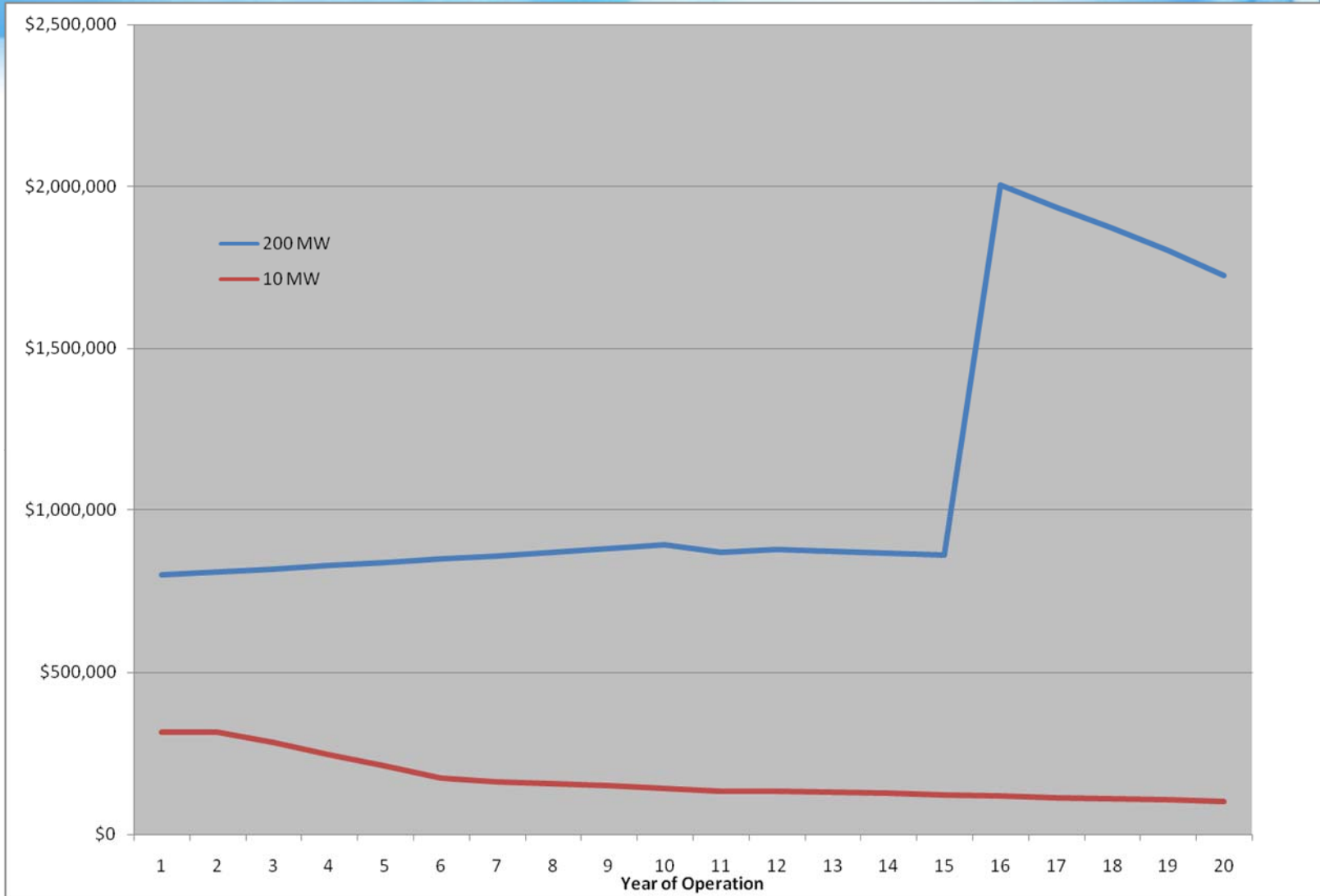
- Landowner royalties
- Property tax revenues
- 2-5 operations and maintenance jobs per 50-100MW in capacity
- 1-2 jobs per megawatt plus revenues for local businesses during construction

Economic Benefits of Community Wind

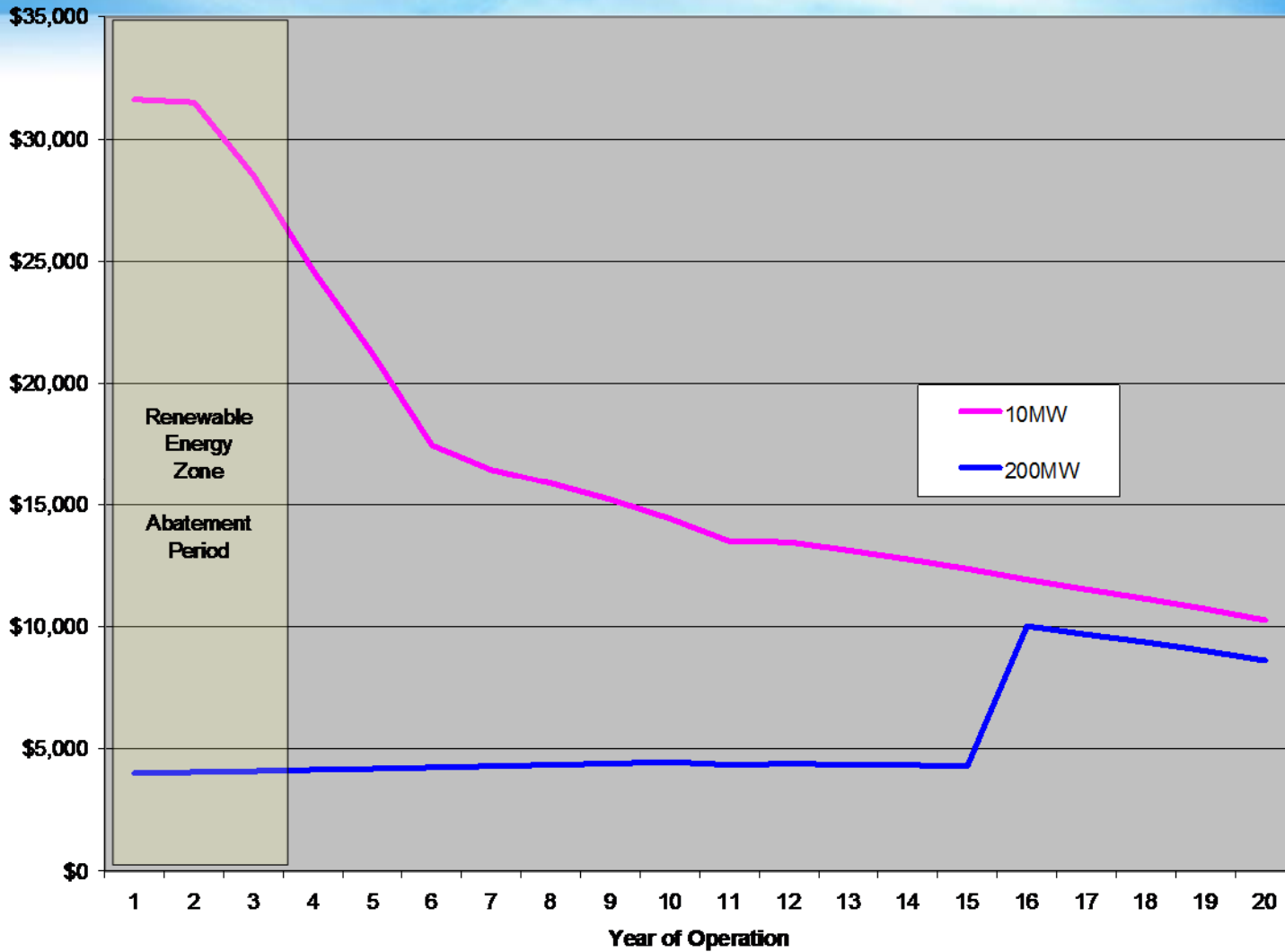


- All the benefits of large wind development, plus:
- Greater stimulation of local economies
 - More likely to use local contractors and professionals
- Increased local energy independence
- Profits to local owners - benefits vary depending upon sources of financing and ownership model
- Greater acceptance of wind power

Total Property Tax Revenue



Property Tax Revenue per Megawatt of Capacity



Development Process

A large white wind turbine is visible in the upper right corner of the slide, set against a blue sky with light clouds. The turbine's nacelle and three blades are clearly visible.

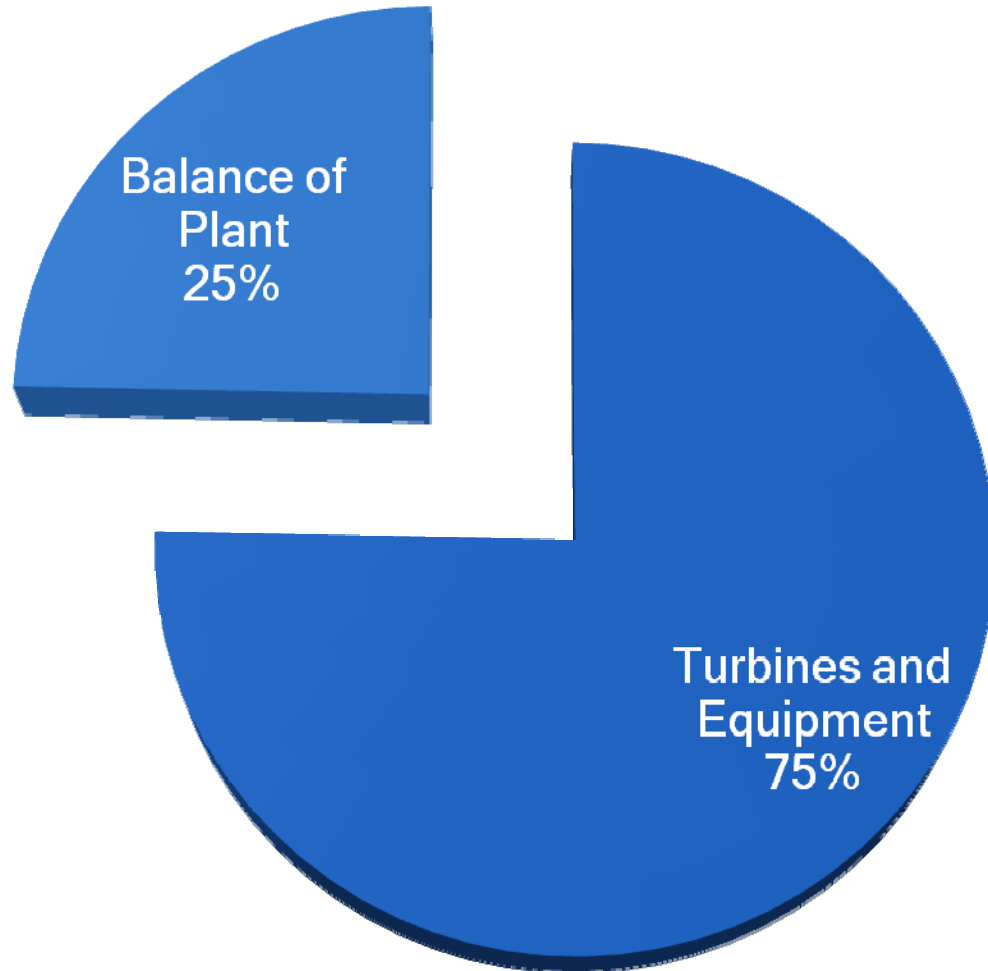
Feasibility
Studies
2-4 Years

Construction
6-12 Months

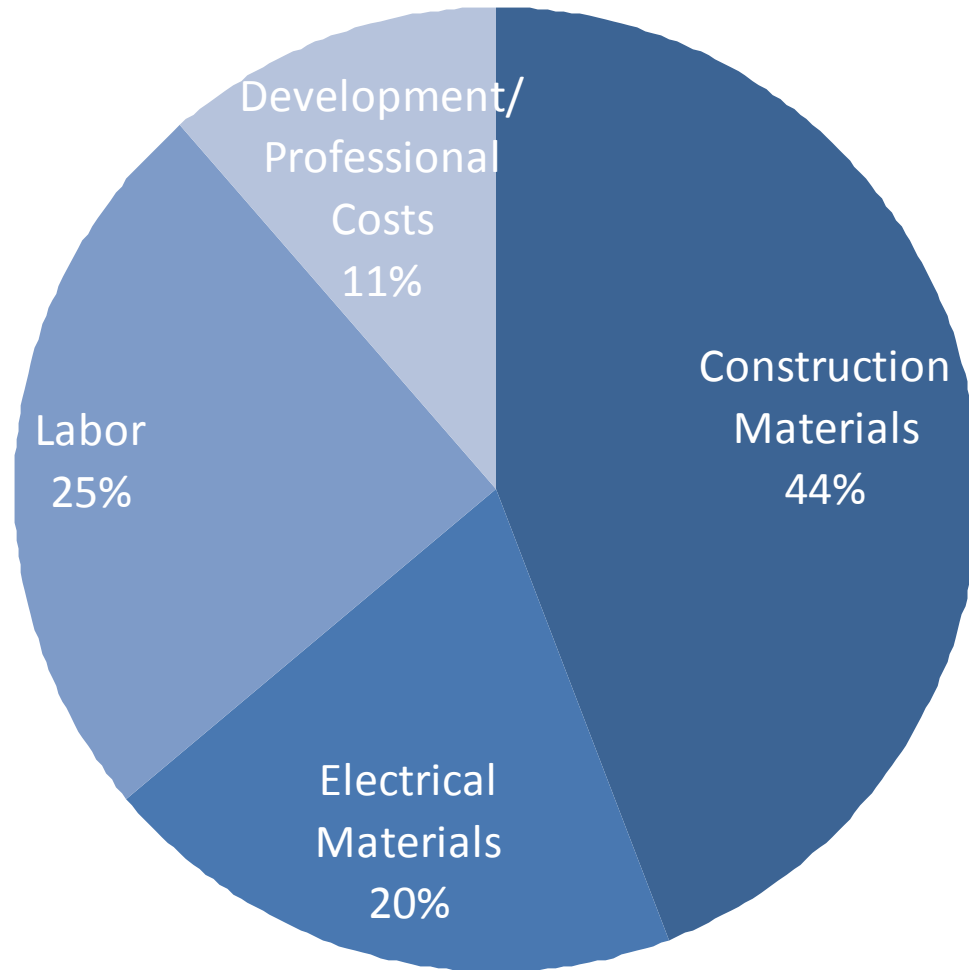
Operating Phase
20-30 Years

Project Capital Cost

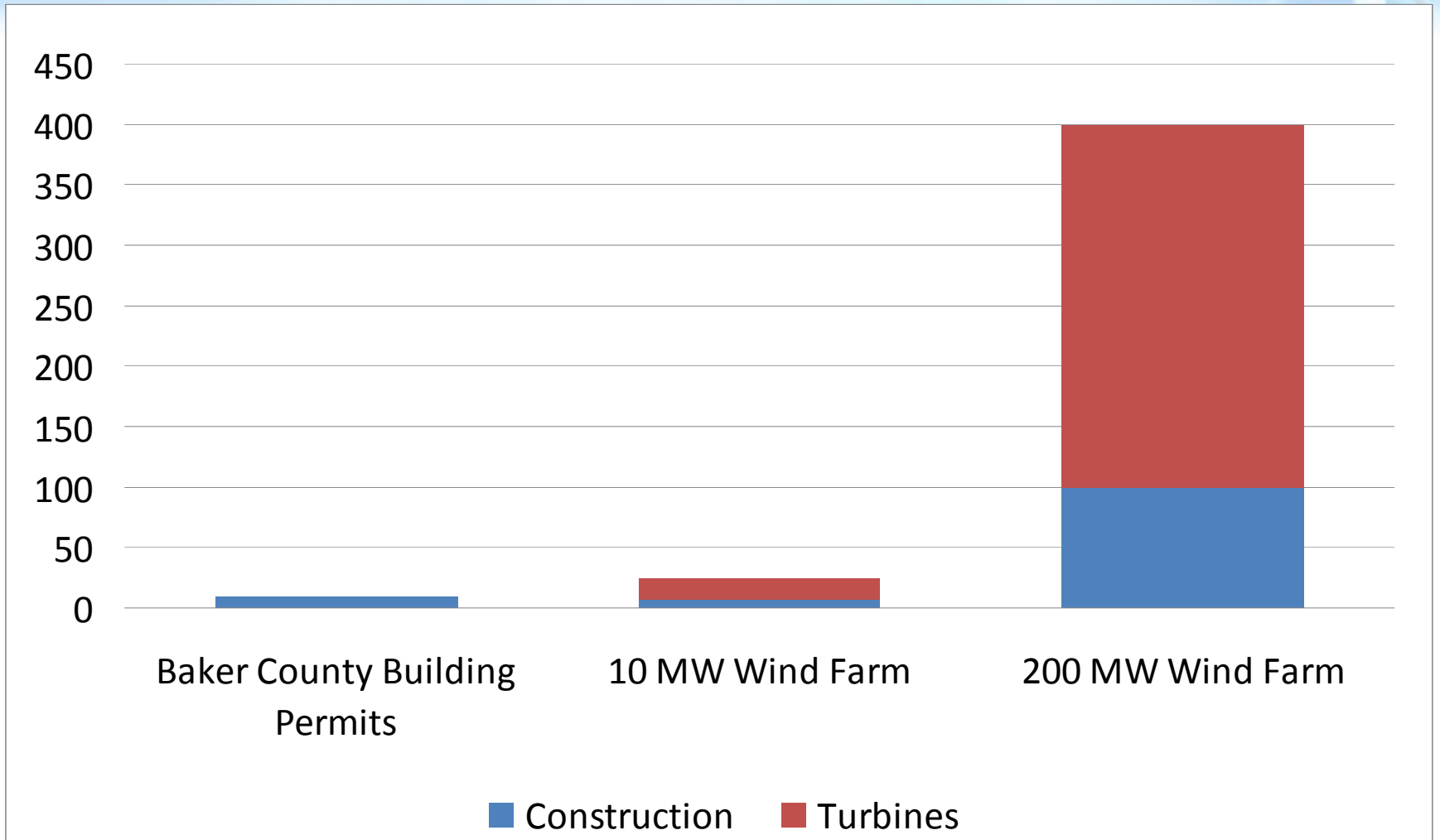
\$2.0 - \$2.5 Million Per Megawatt



Balance of Plant



Building Permits



Municipal Community Wind



- **Model 1 - Self Funded**
 - Funds from grants and public debt
 - Not able to utilize Federal tax incentives
 - Able to utilize tax-exempt debt - lower interest costs
- **Model 2 - Private/Public financing**
 - Private investors provide equity for development and portion of financing
 - Investors receive tax incentives and portion of cash flow for first 10 years
 - Ownership “Flips” to municipal owners after first 10 years
 - Municipal owners guarantee project loans

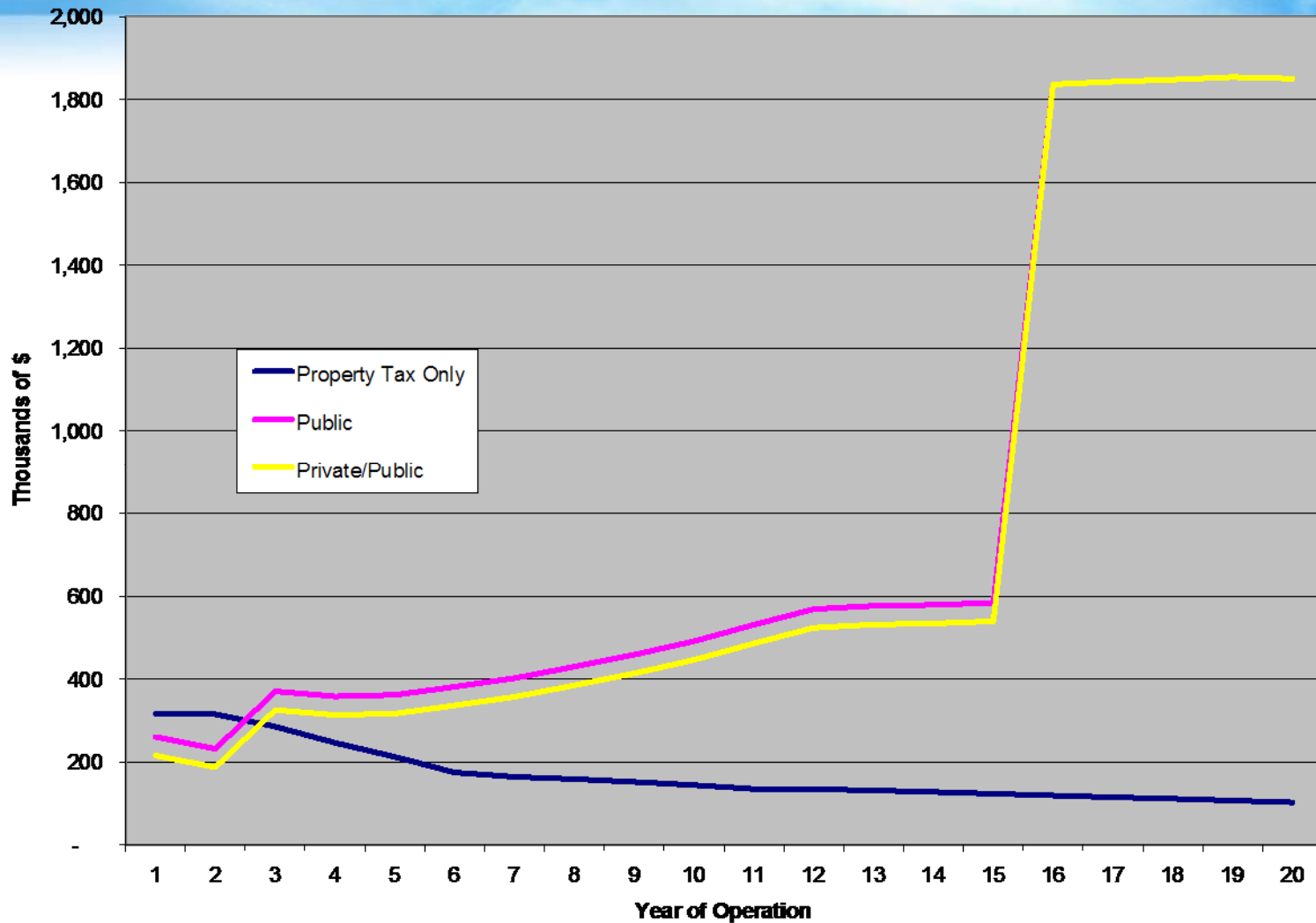
Project Funding



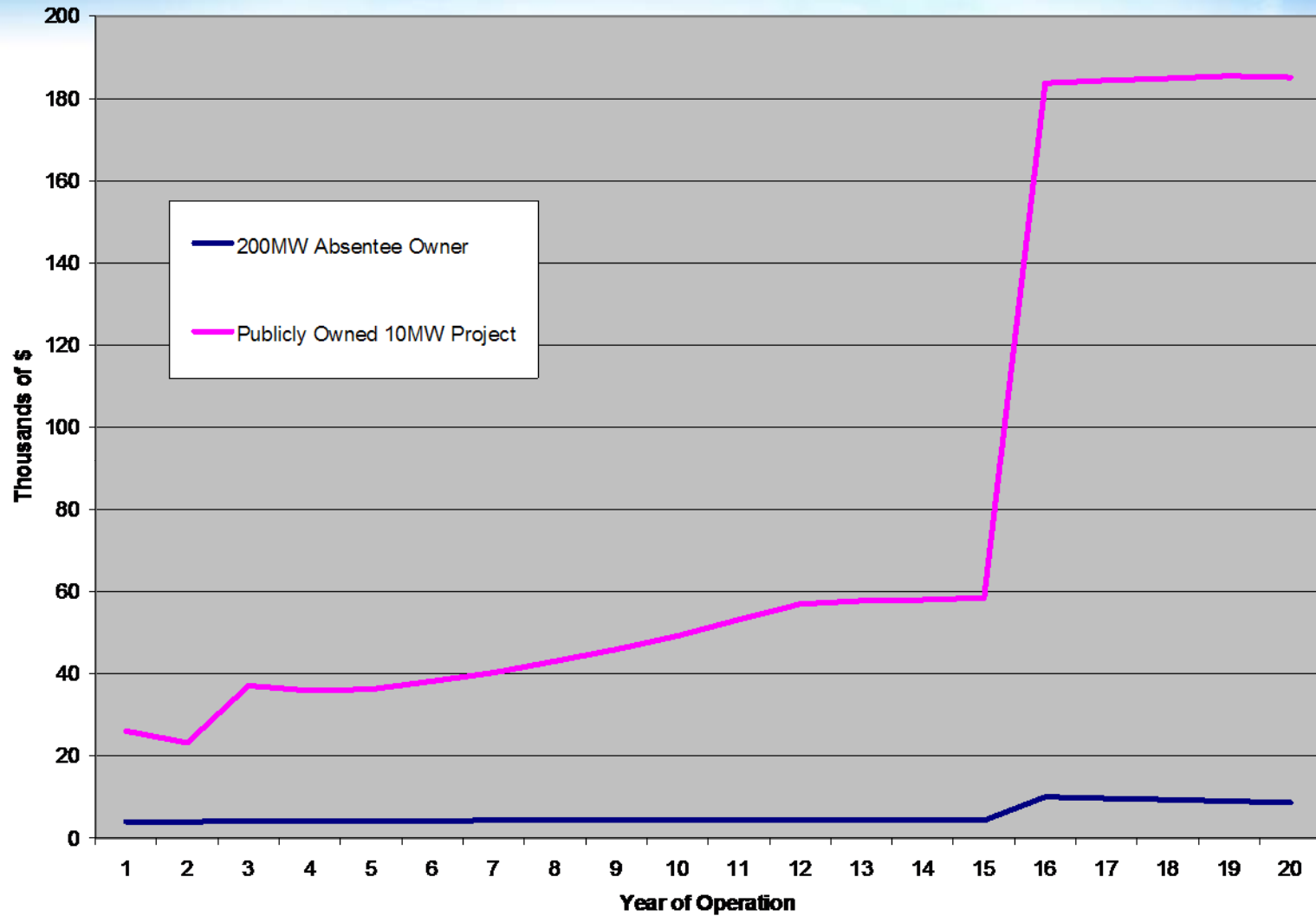
	Public Model	Private/Public Model
Grants and Community Funds	\$2,400	-
Private Equity	-	\$5,300
Oregon BETC - Pass through	6,700	5,000
Investment Tax Credit	-	*
Project Debt - ODOE SELP	13,600	12,400
Total Project Cost	\$22,700	\$22,700

* Assumes Production tax credit in lieu of investment tax credit

Community Cash Flow



Community Cash Flow Per Megawatt



Lots of Variables



- Wind resource
- Power purchase price
- Interest rates
- Access to equity capital
- Access to project grants
- Development/mitigation costs
- Turbine availability
- Community appetite for risk

Oregon Power Solutions



Contact:

Jeremy Thamert, President and CEO
Reid Langrill, CFO

2101 Main St. Suite #205
Baker City, OR 97814

1.541.523.1095 (office)
1.541.523.1180 (fax)

Jeremy@opsenergy.com
Reid@opsenergy.com