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# Introduction to the Renewable Energy Feed-in-Rate

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# Financing Renewable Energy in NC

If Renewable Energy were Real Estate:

- Tenant (Utility )
- Rent (Rate paid for generated electricity)
- Lease (Duration of Power Purchase Agreement)
- Return on Investment



# Regulatory Changes Needed:

## Why is the US so far behind in Renewable Energy?

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### 1. Non-Utility Power Producers:

- Unknown Payment for Electricity Generated (PPA)
- Unknown duration of payment
- Difficult to Finance projects
- Must have tax appetite to benefit from Tax Credits

### 2. Investor Owned Utilities:

- Must own assets to make profit
- Regulatory environment encourages power sales to maximize profit
- Uncertainty of RE cost recovery
- Must be able decouple profits from sales to align utility interest with public interest.

### 3. Today Municipal Utilities and Electric Coops can lead the way!



# Renewable Energy Feed in Rate

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1. Sets a transparent Rate that utility will pay for Renewable Energy will be “Fed” into the grid
2. Sets a Duration for these payments
3. Reduces available Feed-in Rate on regular basis
4. Aligns Utility Interest with Public Interest
5. Creates Jobs and Attracts Business



# Establish a Feed In Rate (REFIR)

- Defines a rate that the Utility will buy electricity generated by a specific Renewable Energy Source and Size.
- Rate provides incentives to develop and deploy RE, but does not cause windfall profits.
- Example of Feed-in Rate Structure

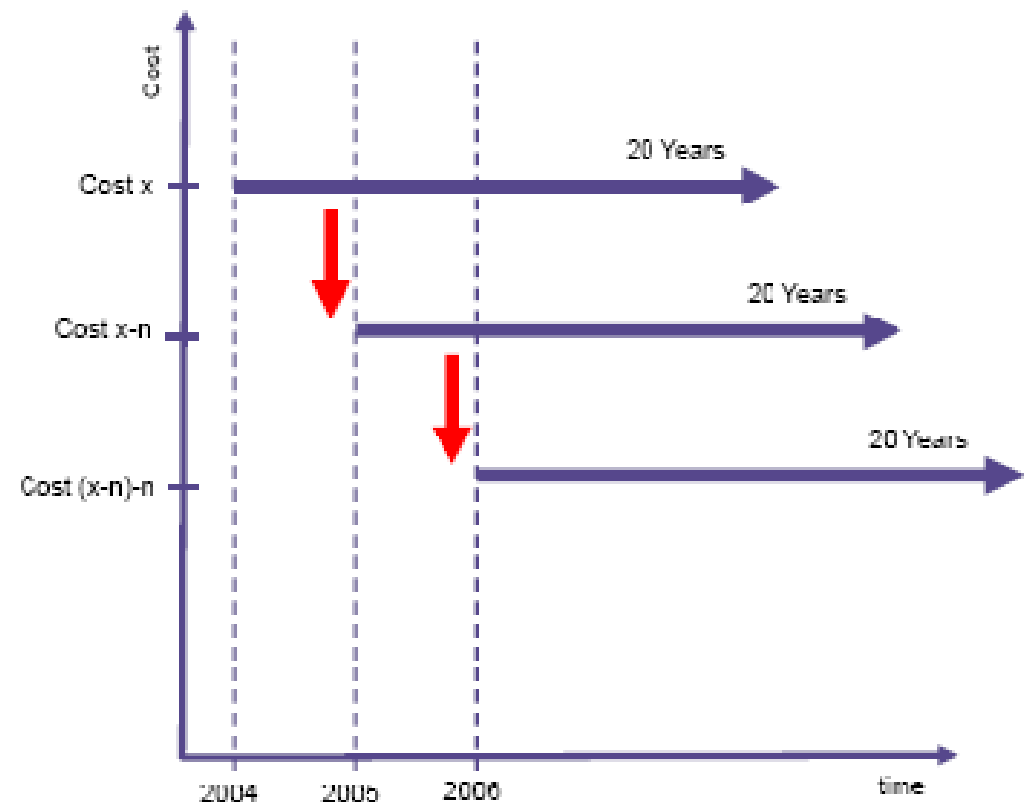
Technology	2010
PV Roof Mount 10KW - 100KW	\$0.181
PV Roof Mount 100KW - 500KW	\$0.152
PV Roof Mount 500KW - 1MW	\$0.131
PV Ground Mount 100KW - 1MW	\$0.113
Biomass	\$0.080
Biogas	\$0.125
Landfill & POTW Gas	\$0.092
Wind Offshore	\$0.154
Wind Onshore	\$0.081

**Example only**

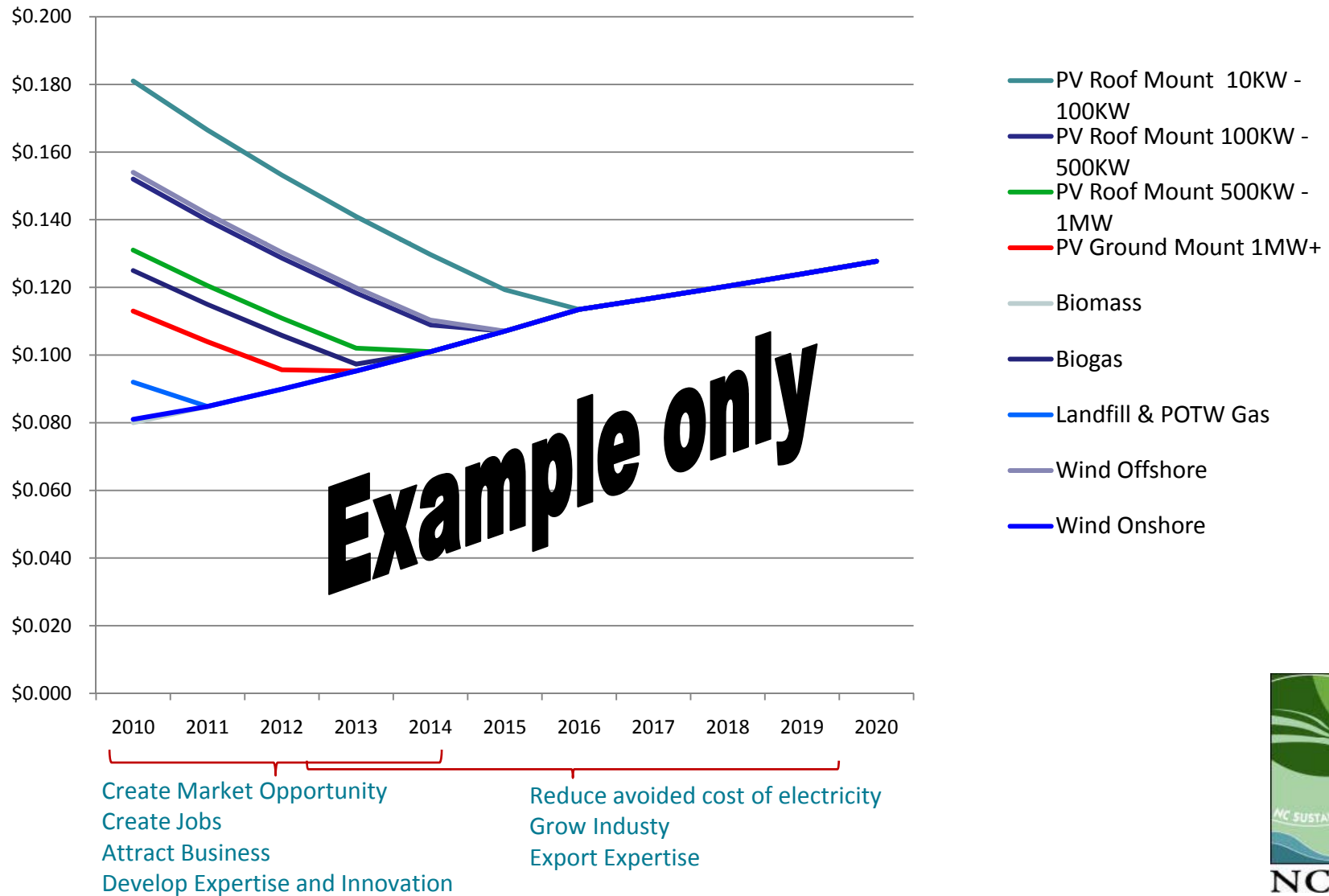


# Feed in Rate Duration and Reduction

- Lock in FIR at time of commissioning.
- FIR lasts for 20 yrs plus year of installation
- FIR for new projects will be reduced on a regular basis.
- Provides long term Financial transparency and ROI for investment



# Rate Reduction to Grid Parity:

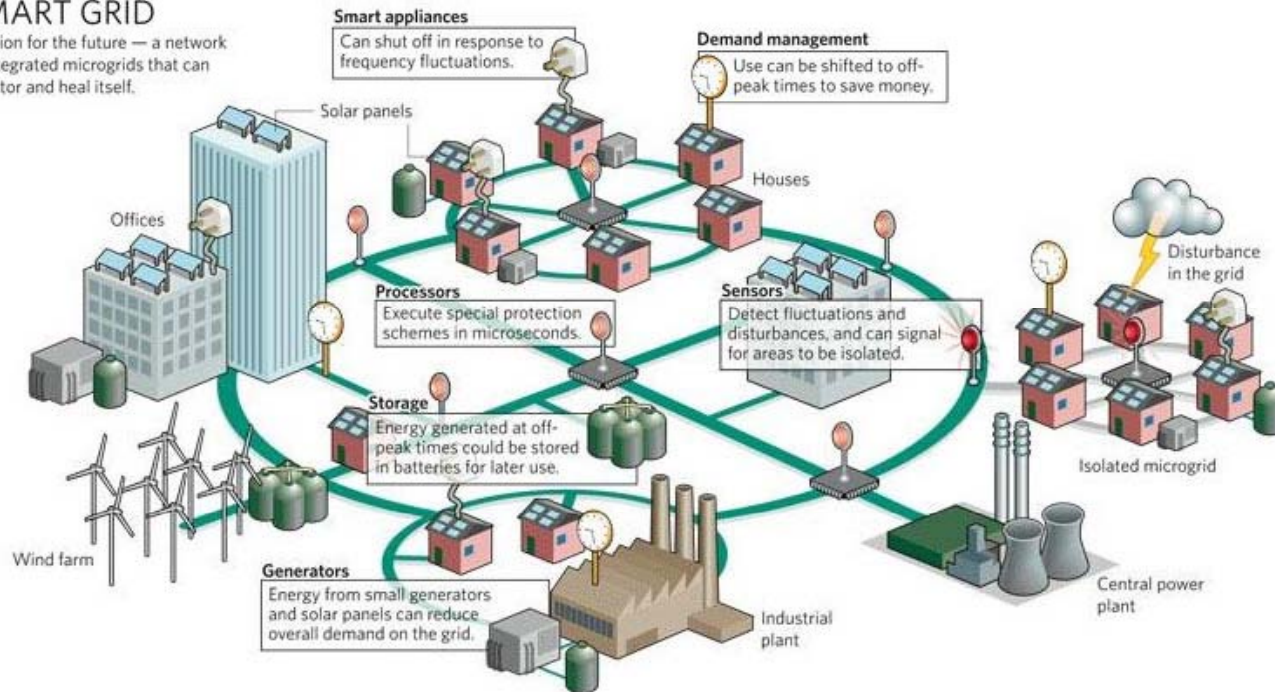


# Align Utility Interest with Public Interest

- Today's Regulatory Environment requires Investor Owned Utilities to own all assets, and maximize of electricity sales to maximize profit.
- Utility must have an incentive to buy renewable energy and promote energy efficiency.
- Utilities need to develop expertise and experience interconnecting significant amounts of distributed Renewable Energy generation

## SMART GRID

A vision for the future — a network of integrated microgrids that can monitor and heal itself.



# Why would a Utility Want a Feed-in Rate?

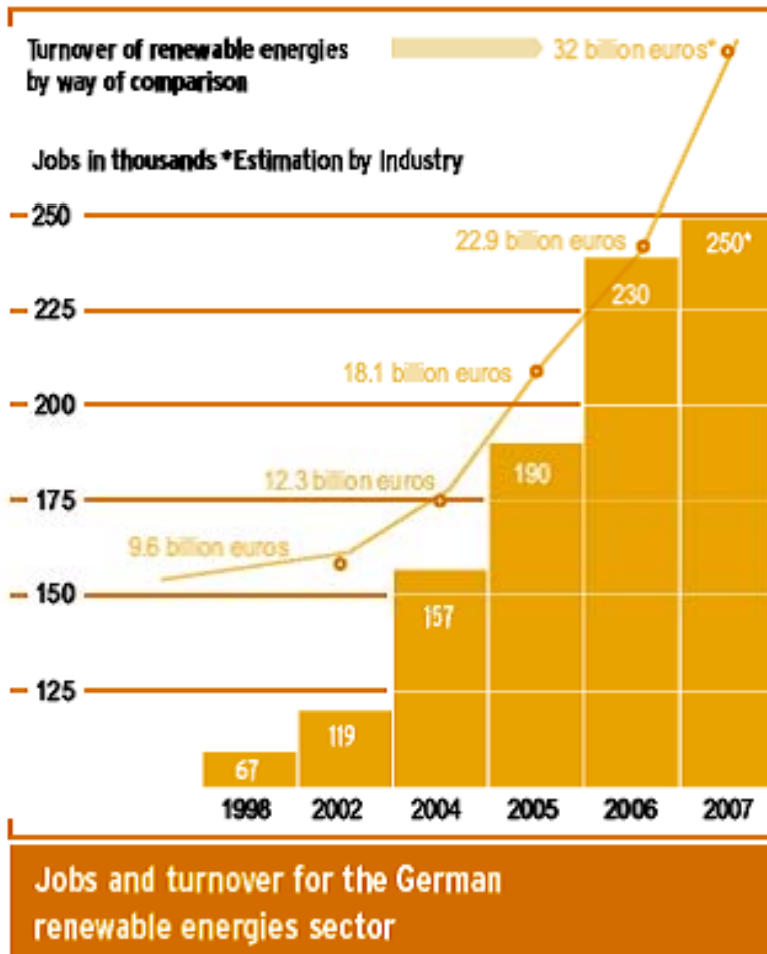
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- Will reduce the administrative costs and time to deploy
- Easier to plan generation costs and capacity
- Add smaller, distributed generation capacity to the grid as needed:
  - Reduce risk of building overcapacity
  - Reduces Peak Generation Cost
- Opportunity to create new business model that protects utility profitability when buying clean energy, or promoting efficiency



# How does a Feed-in-Rate Create Jobs and attract business to a Region?

Source: DIW/DLR/GWS/ZWS/ Job impact  
Turnover – BMU/ Renewable Energies Statistics



- Transparent Feed in Rate create a market opportunity
- Installation, operation and maintenance Jobs created
- Project Development, architect, engineering Jobs created
- Project Finance, Accounting, Law jobs created
- Manufacturing jobs created by ability to sell new products into transparent market place
- Suppliers locate close to manufacturers
- Training in Community Colleges
- Research and Development in Universities



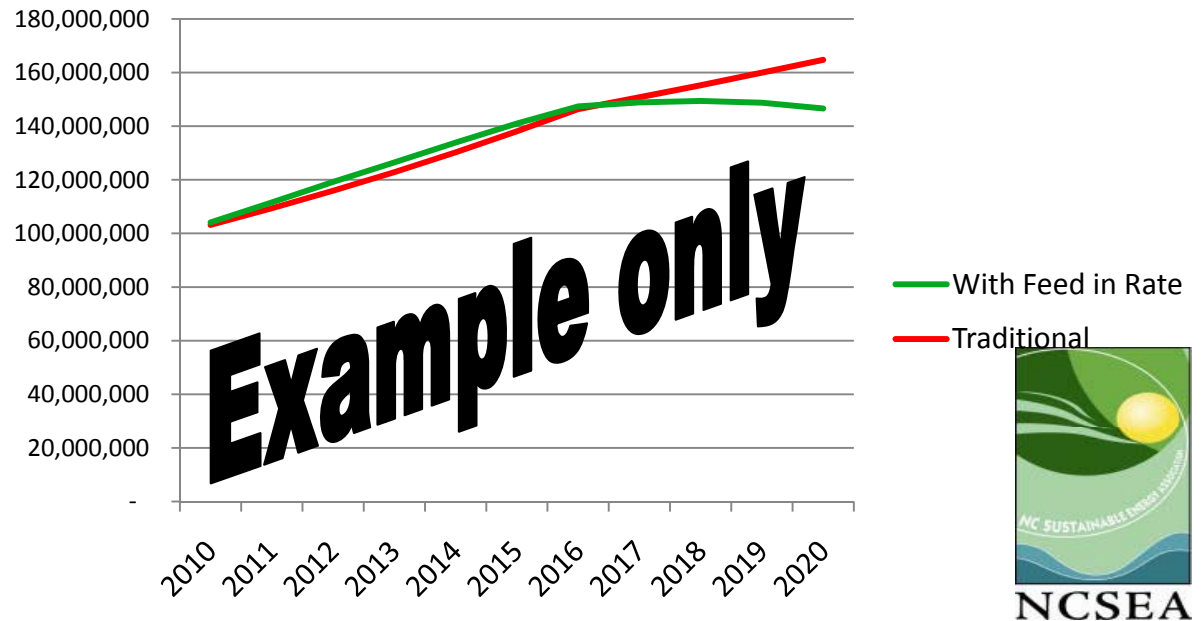
# Jobs years created per Megawatt Installed

- 85 job years per MW installed of Solar
  - 80 jobs years per MW of Swine Waste
  - 30 job years per MW of Landfill gas
  - 25 job years per MW of new Coal
  - ? Jobs years per MW of new Nuclear
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- A Feed-in Rate program directly links jobs to Renewable Energy deployed



# How can a Feed-in Rate will Minimize Rate Increases

- Example of NC Co-op
  - 75,000 customers consuming 1,290,000MWH per year
  - Implement a 10 yr Feed in Rate Program to install 20% RE by 2020
  - Rate Payers SAVE \$18Million
  - 96MW of Solar, 18 MW of Biogas deployed in 10 yrs
  - 8700 job years
  - 1,000,000 tons of CO2 reduction available for sale
  - Reduce Ozone to comply with EPA standards



# Feed-in Rate Summary

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- Creates a transparent financing mechanism to develop and deploy renewable energy
- Drives innovation, domestic manufacturing, economic development and develops workforce expertise.
- Every Megawatt of Renewable Energy deployment is directly linked to Job creation.
- Allows residents and businesses to participate in new energy economy
- Drive downs production cost of renewable energy to become the cheapest form of energy
- Reduces Carbon emissions that can generated additional revenues for region
- Reduces Ozone pollution that can help secure federal transportation funding



# How can the Charlotte Region implement a Feed in Rate pilot program?

- Set goal for Renewable Energy Deployment in specific time frame
- Calculate Amount Need to provide Feed in Rate to meet region Goal
- Calculate Jobs created, carbon offsets, reduction in ozone that would help the region reach EPA compliance targets for transportation funding
- Apply for federal funding, or generate revenue needed to achieve goal
- Utilize North Carolina Green Power to administer and ear mark fund for Charlotte Region RE Feed in Rate Program

