

Proposal for A Solar Feed In Tariff (FIT)

October 13, 2008

Gainesville Regional Utilities



Objectives in Proposing an FIT

- Encourage early private investment and innovation in photovoltaic installations
- Capture benefits for customers not directly available to GRU as a public entity
- Assure good performance from installed PV systems
- Make solar PV a good investment for both GRU and our customers

Presentation Outline

- Identify challenges of current rebate-based model
- Review analysis methodology
- Compare alternatives
- Describe the recommended FIT
- Summary

Gainesville is a Florida Leader in Solar Photovoltaic (PV)

- 12.9 % of all State solar rebates despite having only 1% of population
- 351 kW solar installed since January 2007 with a target of 478 kW by the end of FY09

Current GRU PV Incentive Program

- Upfront rebate payment

- \$1.50 per Watt
- Business and Residential Customers
- Limited to 5kW (Residential) and 25kW (Business) installations

- Net metering at retail rate

- 9.4 to 14.0 cents per kWh, based on rate category and subject to change with fuel adjustment
- Limited to excess energy generated

GRU Rate Classes

- Residential (RES)
- General Service, Non-Demand (GSN)
 - pay for energy, like residential
 - no extra demand charges
 - rate class usually assigned to small businesses
- General Service, Demand (GSD)
 - pay for energy AND a demand charge
 - rate class for some larger businesses
- Large Power (LP)
 - rate class for the largest business and industrial customers

Net Metering Value Varies Among Rate Classes

\$/kWh

Parameter	Rate Class			
	Res	GSN	GSD	LP
Net Metering Tariff For Excess PV Production	.125	.140	.095	.094
Taxes Avoided – Inside City				
City Utility Tax	.0062	.0077	.0032	.0031
Other Non-Local	.0031	.0134	.0093	.0092
Taxes Avoided – Outside City				
City Electric Surcharge	.0062	.0077	.0032	.0031
County Utility	.0068	.0085	.0035	.0038
Other Non-Local	.0035	.0137	.0094	.0093

Largest Roofs
Least Incentive



Providing Maximum Customer Incentive

Choosing an FIT:

- Choose most advantageous rate currently available (GSN retail rate)
- Extend this advantage equally to all customer classes

Current Program Challenges: Customer's Perspective

- Net metering benefits limited to building owners who occupy the building
- Little incentive for landlords to install PV on their buildings
- Attractiveness of solar PV as a business investment is dependent on one's particular level of tax liability
- Uncertainty about future level of savings limits loan potential and third party financial arrangements
- Customers with the greatest square-footage potential for PV have the least incentive

Current Program Challenges: GRU Perspective

- Rebates paid up-front affect cash flow
- Incentives pay for capacity with little guarantee of future performance
- GRU responsible for policing system design to ensure adherence to standards
- Built-in uncertainty about how much real value incentives return

Feed-In Tariff Address All of These Issues

- Predictable, performance-based financial arrangements
- Creates opportunity for creative business models that can capture tax benefits for customers
- Improves financial feasibility of solar PV for all customer classes

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Finding the Right FIT

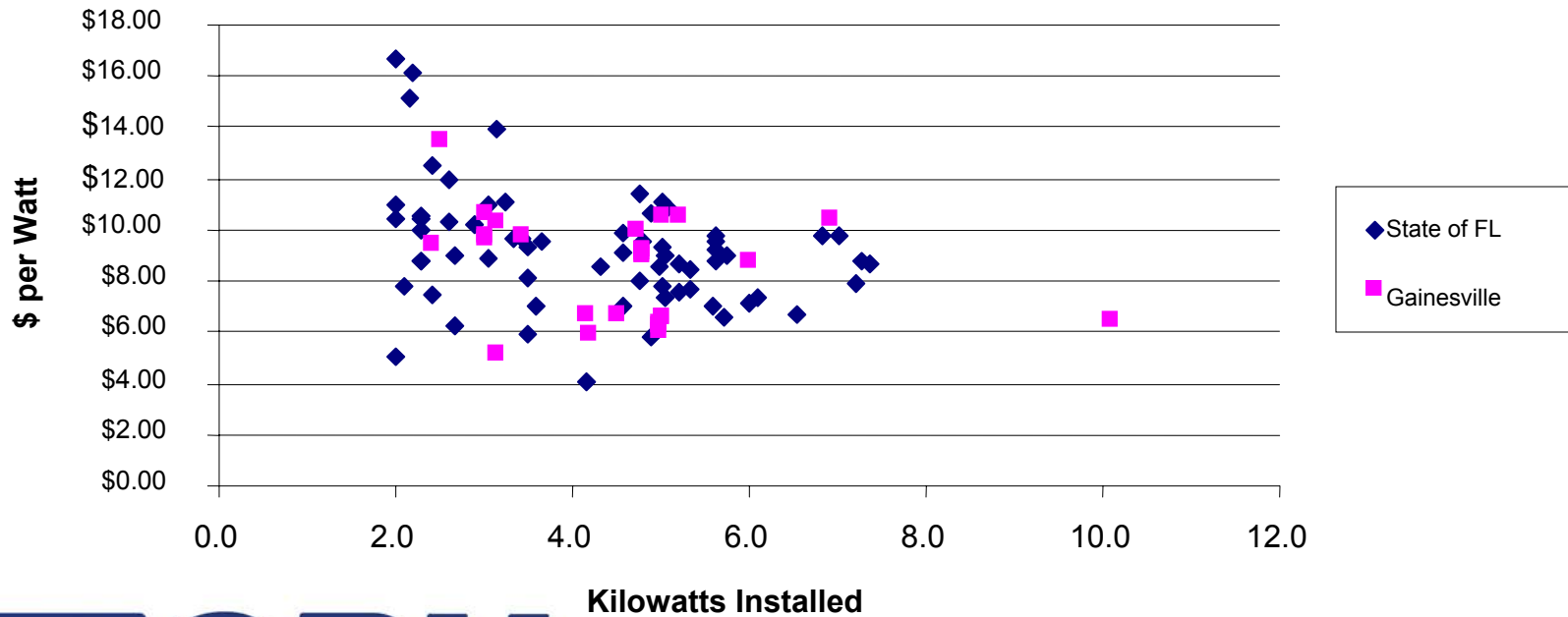
- Collect system cost data
- Develop analysis model to test scenarios with given criteria and assumptions
- Evaluate candidate FITs with the model
- Choose the FIT that provides the best overall investment vehicle with given criteria

Finding the Right FIT, cont'd

- Methodology
 - Assuming a 20-year window, determine the levelized cost per kwh of the current rebate program on a net present value basis
 - Find a feed-in tariff that will produce the same levelized cost over 20 years

Actual PV Costs by Size

Figure 1
PV Systems Cost vs Size



Analysis Assumptions

- PV panels have a 20-year life and all analysis is over this lifetime
- PV degradation (i.e., lower output) happens linearly
- Installed system cost = \$8.50, the current average for Gainesville.
- All levelized values are net-present-value given 20 years
- Discount rate set constant throughout at 6%
- O&M is linearly proportional to array size and estimated to be \$25/kW
- Inverter replacement takes place at year 10 at a cost of \$1000/kW
- Customer chooses accelerated tax depreciation (100% first year of service)

Analysis Assumptions, cont'd

- GSN escalates linearly at 3% annually
- Escalation accounts for increased rates and fuel costs
- State rebate is not considered and assumed to be zero throughout the analysis
- Capacity factor is assumed 17% with a degradation factor of 0.8%/year throughout this analysis
- Federal Investment Tax Credit rate is 30% and IRS income tax rate is 35%

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Analysis Figures of Merit

- Two key financial indicators were used to compare the candidate scenarios
 - Return on Investment (first year) (ROI)

ROI = revenue/initial cost

- 20-year Internal Rate of Return (IRR)

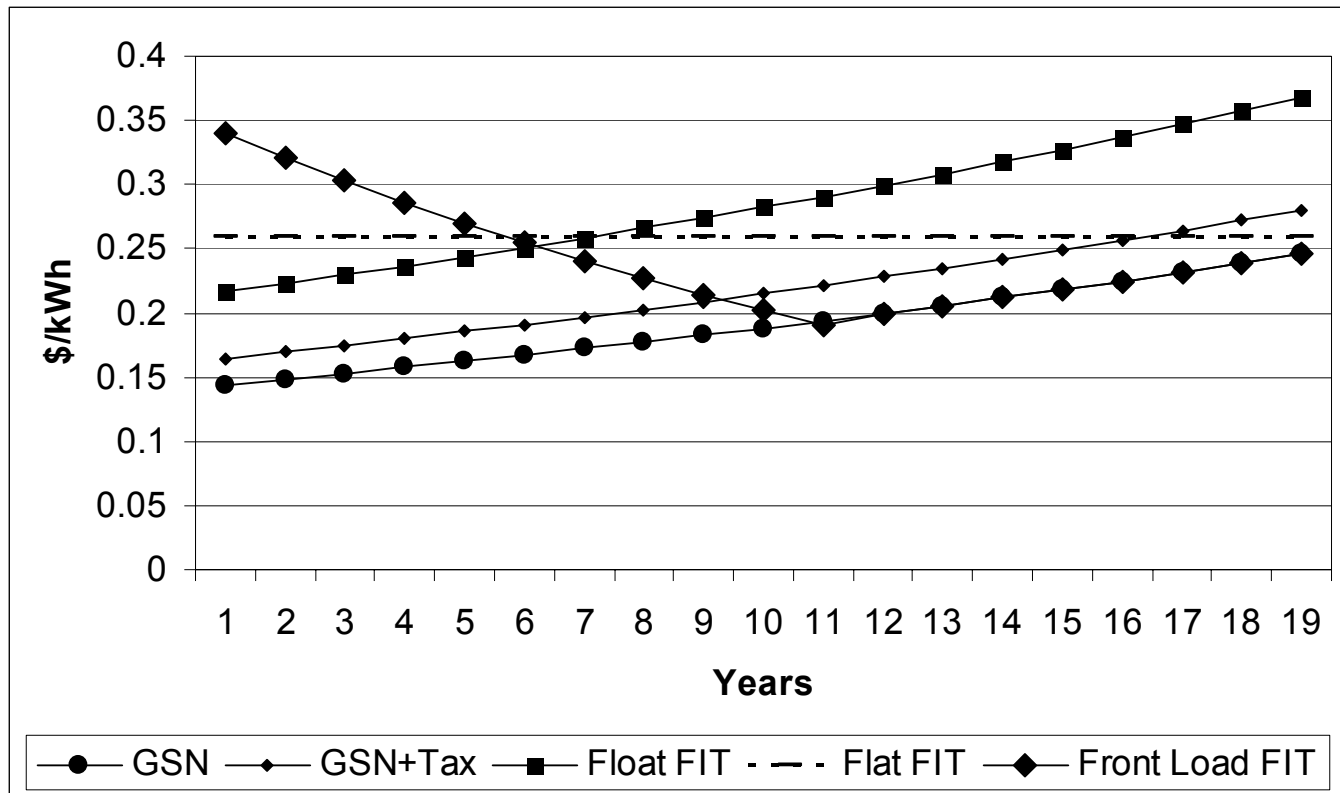
**IRR = interest rate that makes
NPV cash flow out = NPV cash flow in**
(NPV = Net Present Value)

- For Both ROI and IRR, a larger number indicates a better investment

FIT Cases Analyzed

Rate Class	Scenario				
	Current 100% Excess	Current No Excess	Flat Solar FIT	Escalating Solar FIT	Front Loaded Solar FIT
First Year ROI Results (%/Year)					
Residential	6.67	7.16	11.56	9.19	15.72
Gen. Serv. Non-Demand	7.46	8.52	11.56	9.19	15.72
Gen. Service-Demand	5.09	5.75	11.56	9.19	15.72
Large Power	5.03	5.68	11.56	9.19	15.72
IRR Results (%)					
Residential	1.33	2.29	6.43	6.39	6.51
Gen. Serv. Non-Demand	2.86	4.73	6.43	6.39	6.51
Gen. Service-Demand	-2.21	-0.64	6.43	6.39	6.51
Large Power	-2.35	-0.79	6.43	6.39	6.51

Flat Rate Brings Forward Benefits



Flat Rate FIT Outperforms Front-Load FIT

- Although the “Front Load” has a better first year ROI, after year six it is outperformed by the “Flat Rate”
- The 20-year average ROI is higher for the Flat-Rate than the Front-Load

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Analysis Result

Criteria

Rebate (\$1.50/Watt)
+
Net Metering @ GSN
Retail Rate for 20 yrs
+
Federal Tax Incentives



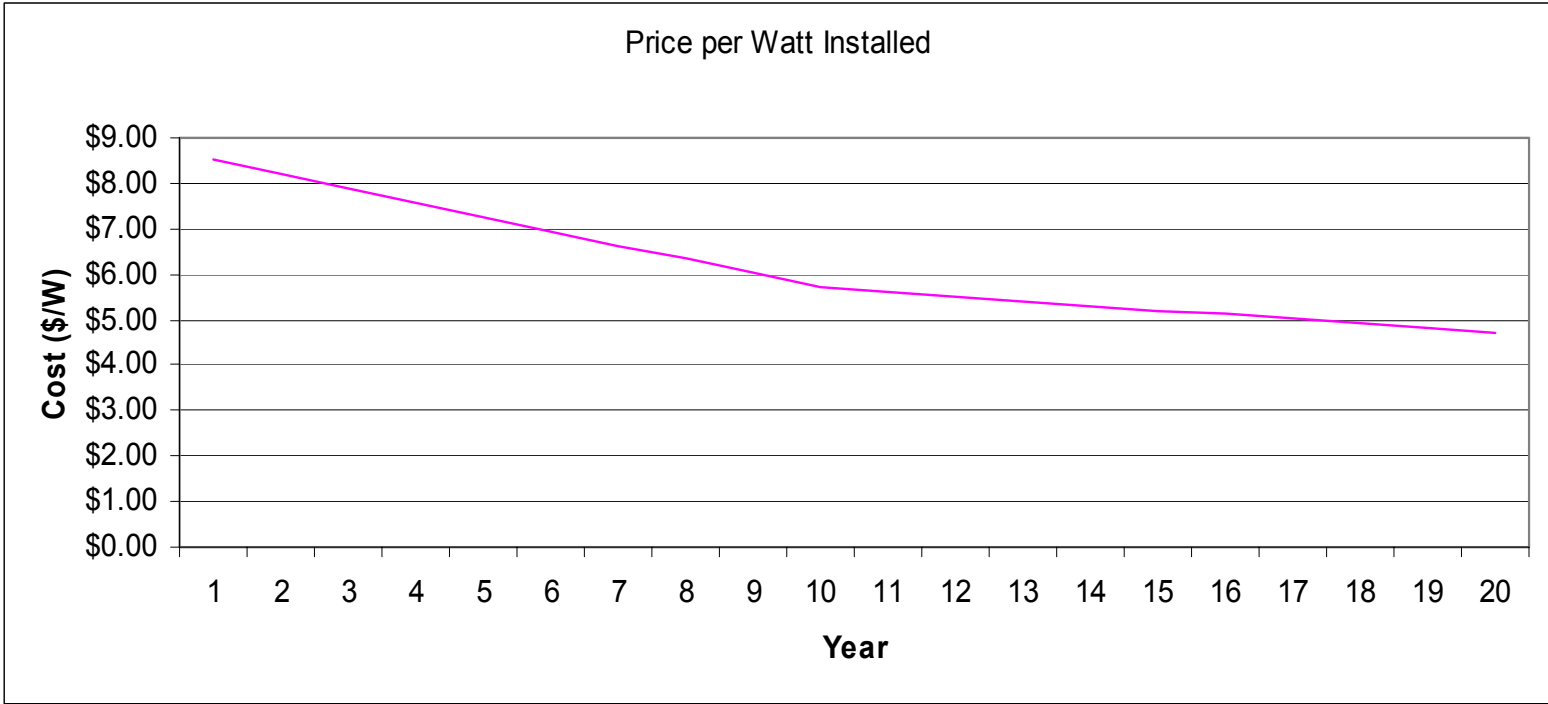
Recommend FIT

No Rebate

Flat-Rate Feed-in Tariff
\$0.26 for 20 yrs
+
Federal Tax Incentives

Levelized Net Present Value

EIA Projected PV Costs



Proposed FIT with Degression

If PV System is Installed in Calendar Year...	Solar FIT Shall be...	And Applied Uniformly From the Date of installation through Dec. 31,
2009	0.260	2029
2010	0.247	2030
2011	0.234	2031
2012	0.223	2032
2013	0.212	2033
2014	0.201	2034
2015	0.191	2035
	Grid Parity	

Recovering Program Costs: Fuel Adjustment Impact

- With 1MW of PV installed every year for the next 20 years:
 - Increase of \$.00242 on the FA by 2029
 - Represents an overall increase of about 1% in the 2029 cost of electricity

Solar Effect on Energy Efficiency Goals

- With 1MW of PV installed every year for the next 20 years, by 2029:
 - 20 MW PV generation installed
 - 29.8 GWH energy produced annually
 - Equal to about 11% of total energy-efficiency goal in 2029

FIT in a Nutshell

- Simple to understand, easy to explain

"GRU will purchase all the energy produced by your PV system over the next 20 years for 26 cents per kWh."

Next Steps

- Adopt a Solar FIT payment program for GRU's service area with all retail rate categories being eligible.
- In exchange for the renewable and environmental emission credits associated with PV energy, the Solar FIT rate will be fixed for at least twenty years at a price depending on the year of installation.
- Set the Solar FIT rate for the first year of the program at GRU's current equivalent NPV cost per watt of PV system (rounded to \$0.260/kWh).
- For subsequent years, perform a program assessment and adjust the rate downward accordingly until grid parity is reached.

Next Steps, cont'd

- Limit PV rebates to residential customers and allow only residential customers to enlist in GRU's net metering program
- Grandfather all customers and PV systems currently enlisted in GRU's net metering program
- Discontinue PV rebates and net metering for all customer rate categories other than residential.