

In the previous version of the "ATC Futures for the 2020 Study Year," ATC assumed that Distributed Renewable Generation (DRG) would provide up to 1.5% of the total energy subject to the Wisconsin Renewable Portfolio Standard. On August 28, 2009 the Public Service Commission of Wisconsin (PSCW) discussed the record in Docket No. 05-EI-148 regarding Advanced Renewable Tariff (ART) development. The PSCW declined to require mandatory ARTs because of legal questions regarding its authority to do so, and instead urged investor-owned public utilities and other electric providers to continue to develop ARTs on a voluntary basis. This development increased the difficulty of predicting the level of DRG in Wisconsin in 2020 and led ATC to reconsider its prior assumption and further evaluate this factor.

One approach would be to take the existing DRG percentage in Wisconsin and increase it by some amount for purposes of the 2020 analysis. However, discussions with both the PSCW Staff and RENEW Wisconsin led ATC to the conclusion that this percentage is not readily available

ATC then determined that the next best approach would be to use the detailed information about DRG in PSCW Staff's May 20, 2009 Memo in the ART docket. Using this information, ATC concluded that it is reasonable to assume that:

1. That DRG supplies 0.5% of energy within ATC in 2020.
2. That the 0.5% DRG assumption applies to the Green Economy and Carbon Constrained futures.

Further information about ATC's approach is provided below.

II. Background Information and Analysis of the PSC Staff's Advanced Renewable Tariff "Hypothetical Scenario"

PSCW Staff's May 20, 2009 ART Memo does not indicate how much distributed renewable generation there is currently in Wisconsin (this is apparently very difficult to determine). It says instead that "Commission staff analyzed the potential ratepayer impacts of one scenario in which a uniform ART policy is implemented for investor-owned utilities, with program caps based on installed capacity." To implement its "hypothetical scenario" PSC Staff tripled WEPCO's current ART program caps for solar PV and biogas (and roughly maintained WEPCO's current ART program cap for wind). Note that in Staff's table below from page 27 of the Memo biogas provides the largest share of DRG energy and so maintaining WEPCO's current ART program cap for wind, rather than tripling this amount, would not have a large impact on the total energy from DRG in Staff's Scenario.

For all other investor-owned utilities, Staff calculated program caps that were roughly proportional to the WEPCO caps based on each utility's annual retail electricity sales (in kilowatt-hours). Using the table in Staff's Memo (reproduced below), totaling the columns, and applying the associated capacity factors (based on the capacity factors given below for each DRG technology), ATC determined that distributed renewables in Staff's scenario total 80 MW and would produce about 495 GWh of energy for Wisconsin.

Notes:

The ART policy applies to solar PV, biogas, and wind systems.

The average capacity factors for each technology are 10 percent for solar PV, 80 percent for biogas, and 20 percent for wind.

The total installed capacity that each investor-owned utility can place under ART contracts is capped for each technology as follows:¹

Utility	Solar PV		Biogas		Wind			
Wisconsin Electric Power Company (WEPCO)	3,000	kW	30.0	MW	2,000	kW		
Wisconsin Power and Light Company	1,250	kW	12.5	MW	825	kW		
Wisconsin Public Service Corporation	1,250	kW	12.5	MW	825	kW		
Northern States Power Company-Wisconsin	700	kW	7.0	MW	500	kW		
Madison Gas and Electric Company	400	kW	4.0	MW	250	kW		
Consolidated Water Power Company	150	kW	1.5	MW	100	kW		
Superior Water, Light and Power Company	75	kW	0.75	MW	50	kW		
Northwestern Wisconsin Electric Company	20	kW	0.2	MW				
Dahlberg Light and Power Company	12	kW	0.12	MW				
North Central Power Company	4	kW	0.036	MW				
Pioneer Power and Light Company	2	kW	n/a	n/a				
Westfield Electric Company	1.6	kW	n/a	n/a				
Total for each Renewable Type (kW)	6,864	kW			4,550	kW	Total	
Total for each Renewable Type (MW)	6.9	MW	68.6	MW	4.6	MW	80	MW
PSC Energy from each Renewable Type	6.0	GWh	480.8	GWh	8.0	GWh	495	GWh

¹Commission staff elected to analyze a scenario in which the state's largest utility, WEPCO, would triple its current ART program caps for solar PV and biogas and roughly maintain its current ART program cap for wind which is actually based on the number of customers, rather than installed capacity. For all other investor-owned utilities, Commission staff calculated program caps that are roughly proportional to the WEPCO caps based on each utility's annual retail electricity sales (in kilowatt-hours). The analysis also assumes that ARTs will not be offered by a utility for biogas or wind systems in Category 1. Therefore, if the relevant capacity cap for any utility would be less than or equal to 20 kW, an ART is not offered for that technology. In these cases the cap is listed as "n/a."

What would be the impact if the ART program caps were doubled (rather than tripled) and applied to ATC rather than Wisconsin? ATC energy is about 85% of Wisconsin energy. Taking 85% of Staff's 495 GWh of DRG yields 421 GWh for the ATC footprint. Dividing this value by 3 to estimate Staff's starting value yields 140 GWh. Doubling this value to 280 GWh answers the question of what would be the impact if the ART program caps were doubled and applied to ATC. 280 GWh is 0.44% of ATC's 2008 weather-normalized energy. Rounding up to 0.5% to account for some additional distributed wind under the PSC 119 interconnection procedure is the basis for assuming "that DRG supplies 0.5% of energy within ATC" in 2020. ATC also concluded that it would be reasonable to assume this level of DRG for two of its environmentally oriented futures, the Green Economy and Carbon-Constrained Futures. Based on the energy growth rates for each of these futures, the Green Economy and Carbon-Constrained futures will include 67 and 52 MW of DRG in 2020, respectively.