Multi-Sector Working Group Survey

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Metropolitan Washington Air Quality Committee
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Agenda Item #5

Metropolitan Washington
Council of Governments

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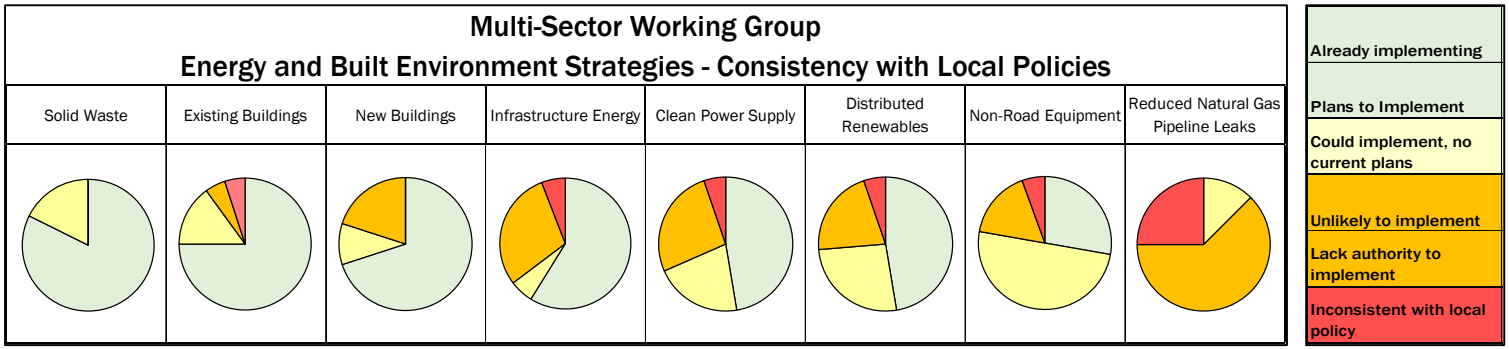
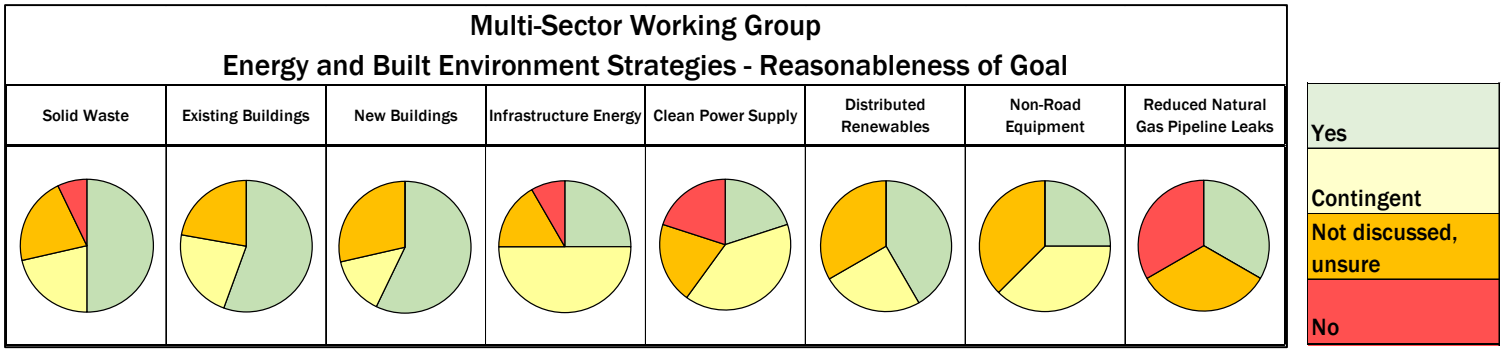




Preliminary results – Do not cite

2013-2016 Climate & Energy Action Plan Survey

Strong Improvement

- Community inventories
- Local govt energy plans
- Energy audits
- Bike/pedestrian plans
- Greenspace plans
- Tree canopy goals
- Green business challenges
- Govt employee education

Less Implementation

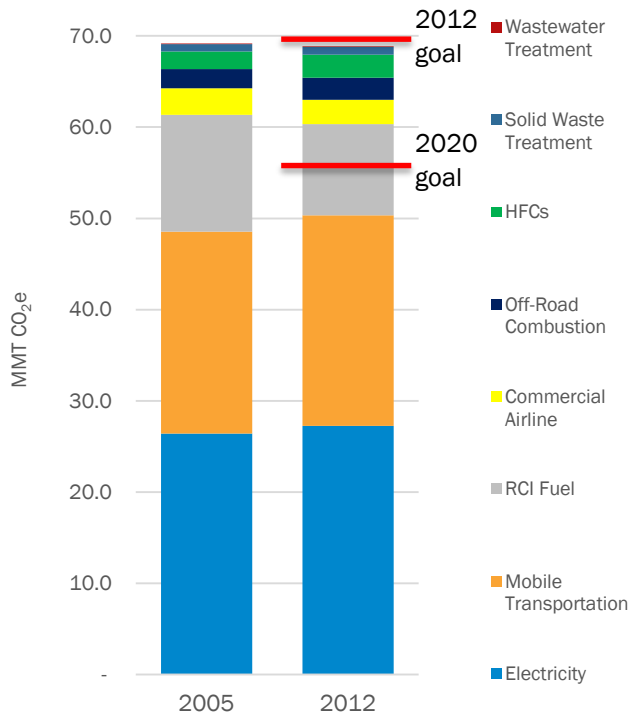
- DOE Better Buildings Challenge
- Energy aligned leases
- Greyfield/brownfield govt facilities and private incentives
- Energy assurance planning
- Green streets policies
- Encouraging private sector benchmarking

Preliminary results – Do not cite

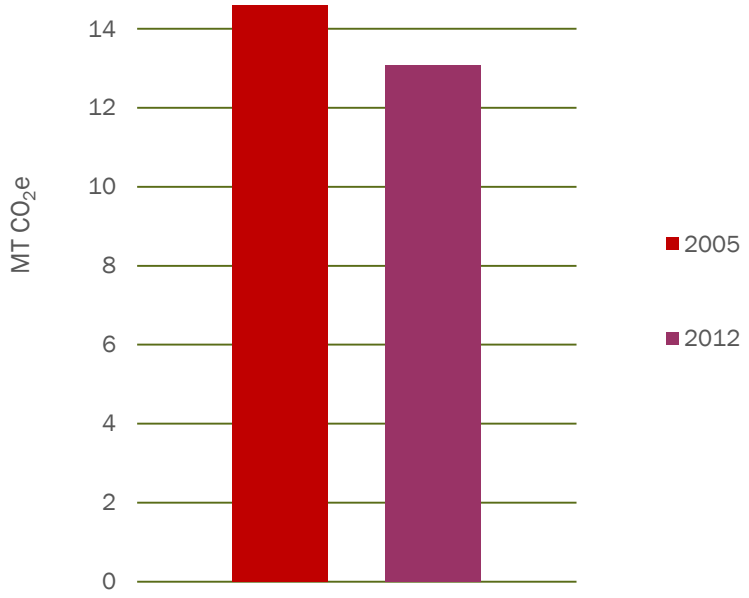
2012 Regional GHG Reduction Goal

Region met the 2012 goal of 10%
below BAU projections (back down to 2005 levels)

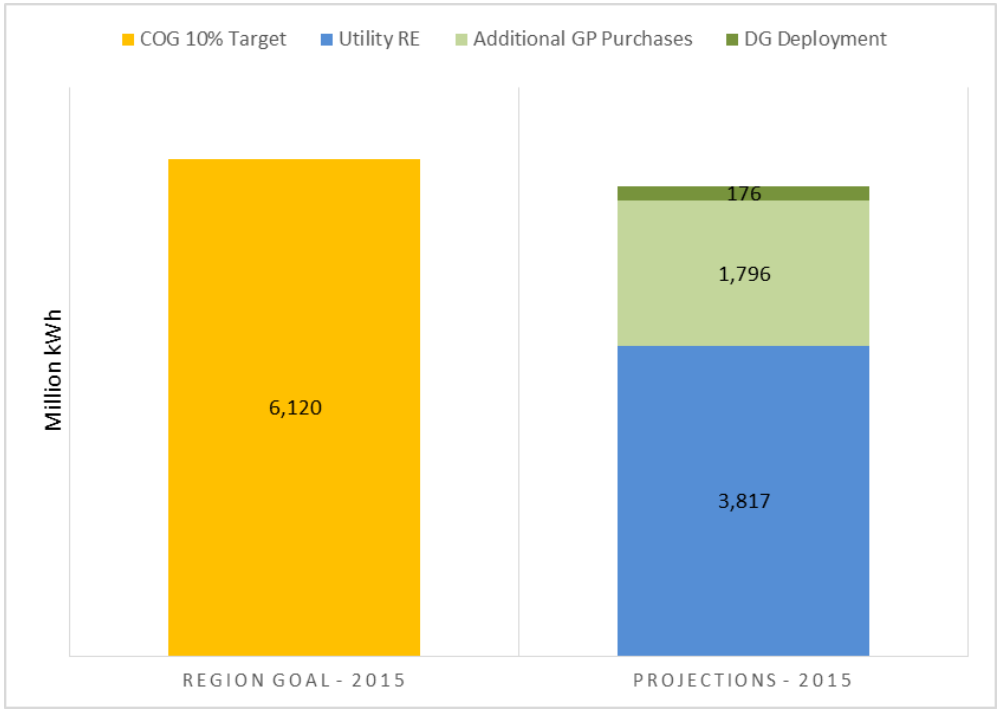
Total Emissions by Activity



Total Emissions per Capita



Renewable Energy Generation Goal



- Regional renewable energy consumption at 9.5% of total in 2015
- Utility supplied non-hydro renewable energy represents over 6% of regional consumption
- Commercial customer voluntary green power purchases represents almost 3% (via EPA Green Power Partnership)
- Distributed generation (primarily solar) estimated at 0.3% (via MWCOG data)

Renewable Energy Generation Goal

2015 Renewable Energy - Metropolitan Washington					
Jurisdiction	Projected Consumption	Utility Supplied Renewable Energy w/o > 30 Mw Hydro	Commercial Customer Voluntary Green Power Purchases	Distributed Generation Deployment	Total Projected Renewable Energy
District of Columbia	10,531	1,074	931	18	2,023
Maryland	21,300	2,236	809	150	3,196
Virginia	29,369	506	56	7	569
Total	61,200	3,817	1,796	176	5,788
Million kWh					

Renewable Energy Generation Goal

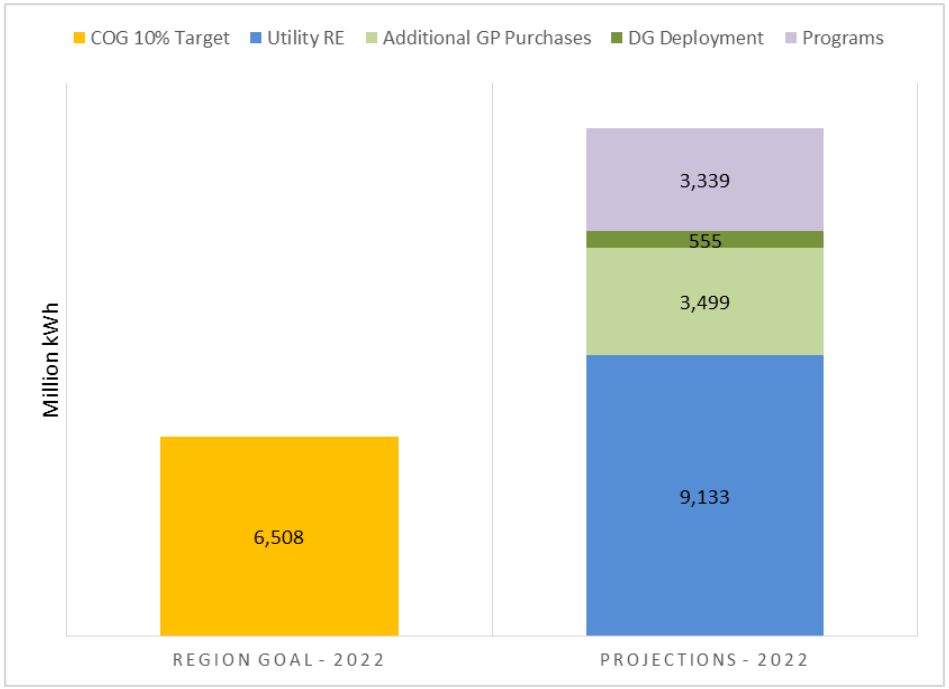
Utility Sector Contribution to Renewable Goals

	VA Voluntary RPS[a]		MD RPS		DC PRS	
Year	With Large Hydro	Without Large Hydro[b]	With Large Hydro	Without Large Hydro	With Large Hydro	Without Large Hydro
2012	2.3%	1.5%	9.0%	6.5%	8.0%	5.5%
2013	2.3%	1.5%	10.7%	8.2%	9.5%	7.0%
2014	2.2%	1.4%	12.8%	10.3%	11.1%	8.6%
2015	2.2%	1.4%	13.0%	10.5%	12.7%	10.2%

Note: Utility RPS goals/requirements were factored into total jurisdictional electric consumption to calculate total regional impact

Renewable Energy Technology	COG Regional Target
Solar Photovoltaics	Y
Solar Thermal Electric	Y
Solar Water Heat	N
Solar Space Heat	N
Solar Thermal Process Heat	N
Wind (All)	Y
Qualifying Biomass	Y
Hydroelectric <30MW	N
Geothermal Electric	N
Geothermal Heat Pumps	Y
Geothermal Direct-Use	Y
Municipal Solid Waste	Y
Landfill Gas	Y
Anaerobic Digestion	Y
Fuel Cells using Renewable Fuels	Y

Renewable Energy Potential



- Overall regional renewable energy consumption forecast at over 25% of total in 2022
- Utility supplied non-hydro renewable energy represents 14% of regional consumption
- Customer voluntary Green Purchases estimated at over 5% (via EPA Green Power Partnership)
- Distributed generation (primarily solar) estimated at 1% (via MWCOG data)
- Additional regional strategies could potentially contribute 5% more clean power consumption

Renewable Energy Potential

State	Projected Consumption	10% RE Goal	Utility Supplied RE w/o Large Hydro	Customer Voluntary Green Power Purchases	DG Deployment	Programs	Total Projected RE	Total Projected RE (%)
MD	22,630	2,263	5,658	1,577	470	1,298	9,002	39.8%
VA	32,647	3,265	1,303	109	28	1,631	3,070	9.4%
DC	9,799	980	2,173	1,814	57	410	4,454	45.5%
TOTAL	**65,076**	**6,508**	**9,133**	**3,499**	**555**	**3,339**	**16,526**	**25.4%**

State	Solar PV Capacity (MW)
MD	1,333.5
VA	1,110.9
DC	361.0
TOTAL	**2,805.3**
Less Existing Solar PV	*122.7*
Net New Solar PV	**2,682.6**

Year	Sector	MW	Projects	Notes
2022	New Residential	587.3	117,468	~10% of 2012 single family residences
2022	New Commercial	640.6	3,203	~3,800 acres needed
				(Pentagon with parking is ~1,000 Acres)
2022	New Utility	1,454	291	~8,700 acres needed
				(Dulles Airport is >12,000 Acres)
2022	**Total New**	**2,682.6**	**120,962**	

- Renewable electricity forecasts (kWh) for DG Deployment and Programs was converted to solar capacity using location-specific solar yield factors in MD, DC and Northern VA
- For relative project volume estimates, the mix of solar capacity by sector nationally was applied to capacity forecasts and then sector-specific assumptions were used to calculate number of projects

Renewable Energy Potential

Forecast Assumptions

- Forecasts are based on a combination of RPS targets for utility supply and "what if" scenarios.
- These can be considered as illustrative calculations of what is possible in the region, but not necessarily predictive.
- The major drivers for utility supplied non-hydro renewable energy is expected come from mandatory RPS goals in MD and DC and contribute the most to attainment of renewable energy targets within COG.
- There is a large, ongoing impact of voluntary purchases by government agencies, commercial, and industrial energy users and forecasts for this analysis include a 10% annual increase in these voluntary purchases.
- Distributed generation forecast includes a conservative estimate of annual growth potential of 20-25% per year through 2020 then 5% thereafter (compared to the compound growth rate through 2015 of 45% per year).

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