

Federal Utility Partnership Working Group

Renewable Energy in the Southeast



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Discussion Outline

- Drivers
- Considerations
- Opportunities

Federal Agency Drivers

- **Energy Efficiency** (Energy Intensity & Fossil-fuel Reductions)
- **Renewable Energy** (Biomass, bio-fuels, solar, landfill gas, etc)
- **Energy Security** (Military defined security vs. reliably served)
- **Greenhouse Gas Reductions**

Mandates in place for Federal Agencies

- Federal Statutes (EPA Act 2005, EISA 2007, 10USC2911, etc)
- Executive Orders (E.O. 13423, E.O. 13514, etc)
- DoD/Service Branch Directives

Renewable Resources

Solar



**Low-Impact
Hydro**



Wind



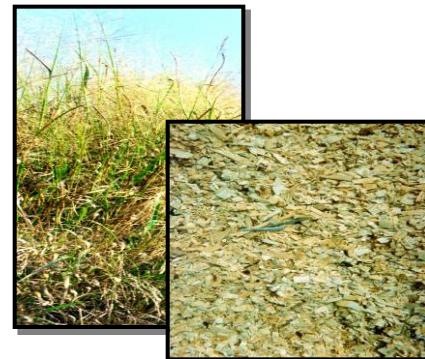
**Landfill
Gas**



Geothermal



Biomass



Renewable Generation Examples

- Hydro – 33 facilities totaling 2,820 MW
- Biomass – 100 MW plant in TX (2012 COD), 23+ MW (PPA)
- Solar – 30 MW plant in NM, 50+ MW (PPA)
- Landfill Gas to Energy – 3.2 MW plant in FL, ~10 MW (PPA)
- Geothermal – 30 MW project in HI
- Wind – 200+ MW (PPA)

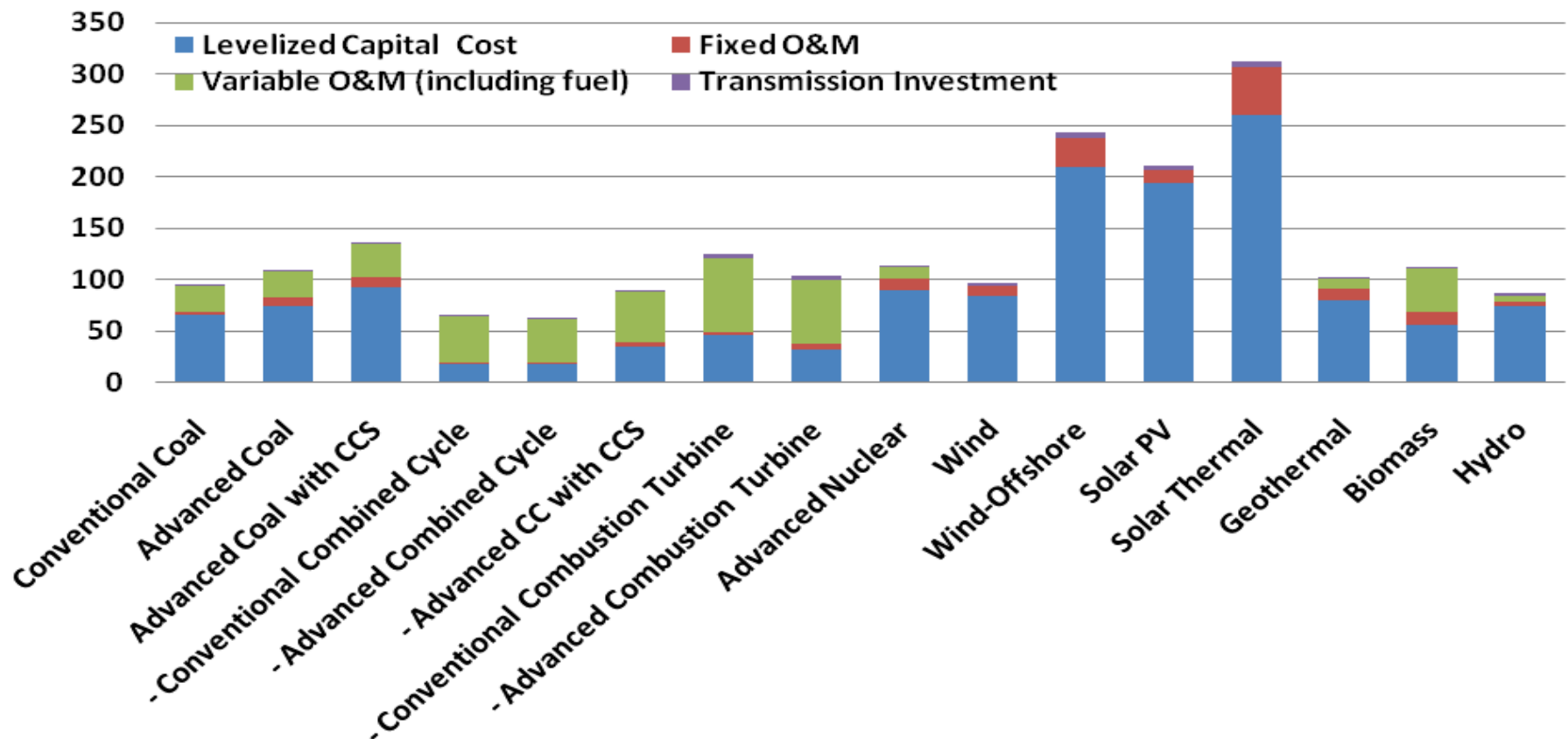
- Continually evaluating project opportunities for cost effective solutions

Renewable Generation - Considerations

- Economics (cost effectiveness)
 - Legislative Requirements (State, Federal, Agency specific)
 - Tax Incentives
 - Global drivers for commodity pricing
 - Renewable/Green/Clean energy tariffs
- Integration
 - Resource Intermittency and Reliability (Wind and Solar)
 - Backup generation
 - Interconnection (procedures, timeline, costs)

Generation Resource Cost Metrics

Estimated Levelized Cost of New Electricity Generating Technologies in 2016 (2009\$/megawatt hour)



Source: Energy Information Administration, Annual Energy Outlook 2011,
http://www.eia.doe.gov/oiaf/aeo/electricity_generation.html

Economics (Cost Effectiveness)

- Legislative Requirements (State, Federal, Agency specific)
- Tax Incentives
- Global drivers for commodity pricing
- Renewable/Green/Clean energy tariffs

Integration

- Resource Intermittency and Reliability (Wind and Solar)
- Backup generation
- Storage technologies
- Interconnection
 - Transmission and Distribution level voltages
 - Regulated procedures, timelines and costs
 - Applicable to direct and indirect systems

Federal Agency Drivers

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Opportunities

- What is “cost effective” and what is the best strategy for Agency compliance?
- Appropriately applying legislative/executive orders
- Renewable/Green Tariffs (EO 13423)
- Combined Heat and Power (CHP) if available

Questions?