

INVESTING IN A CLEAN FUTURE

2014 Resource Plan Update to Steering Committee on Net Zero Emission Goal

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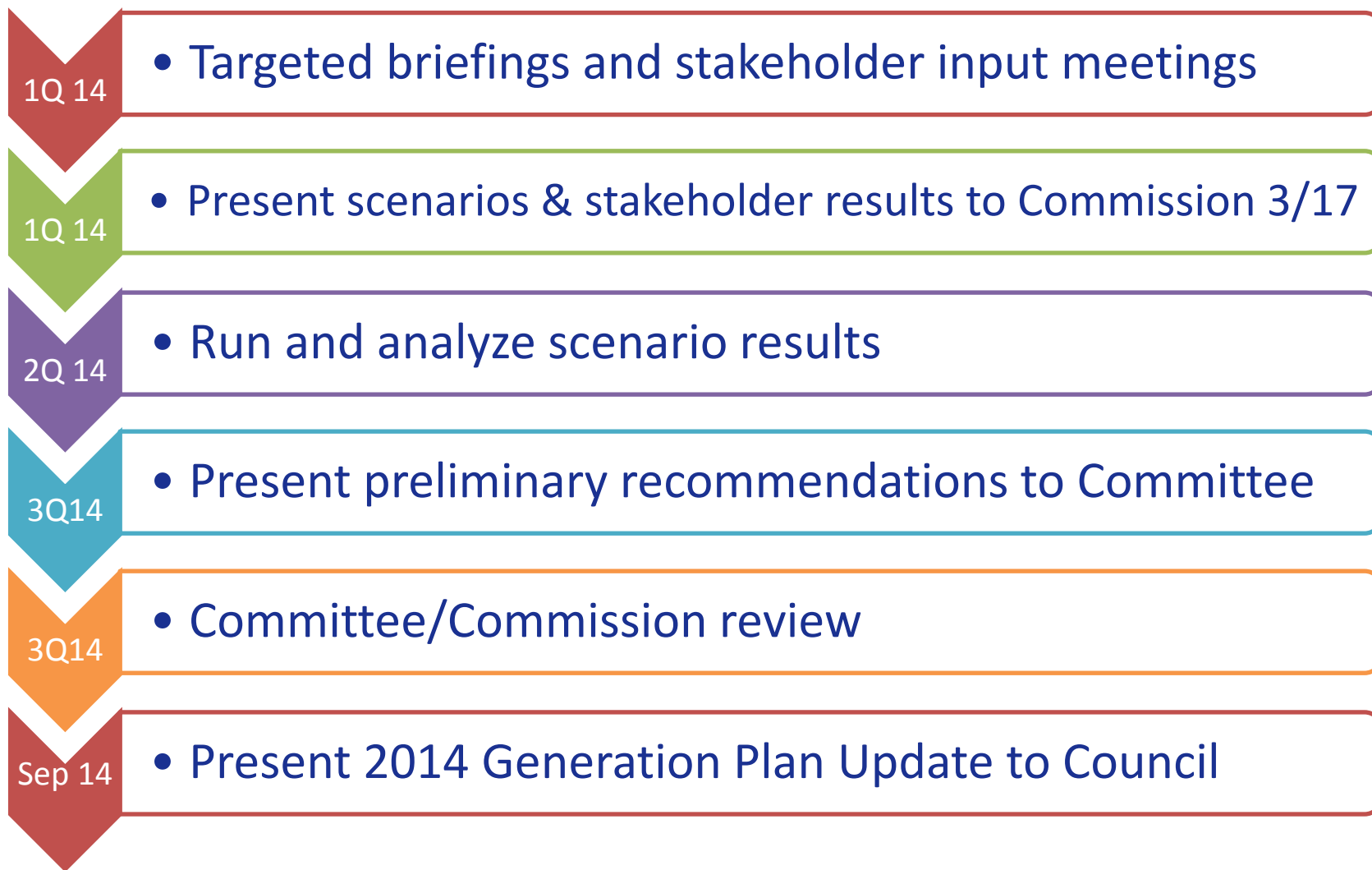
Manager, Energy Market Analysis



July 2014



Proposed Timeline to City Council





Goals and Objectives

- **2020 Climate Protection Plan goals approved by Council**
 - 35% renewable resources
 - 200 MW solar, including 100 MW of local solar, at least half of which will come from customer based systems
 - CO₂ power plant emissions 20% below 2005 levels
 - 800 MW of energy efficiency and demand side management
- **Affordability**
 - Lower 50th percentile of Texas retail rates
 - Annual rate changes not to exceed 2%
- **Financial Stability**
 - Current and desired capital & debt and reserve levels

Austin Energy provides a generation update to Council every two years





Renewable Energy Goal Status

Generation Resources in MW

Year	Coal	Nuclear	Gas	Biomass	Wind ³	Utility Scale Solar	Local Solar	Renewable Portfolio
2014	602	436	1497	112	850.9		48.0	23.2%
2015					200/300		12.0	28.3%
2016					200/(195.6)		8.0	35.1%
2017			200		(91.5)	150.0	8.0	36.0%
2018			800 ²		(34.5)		8.0	35.5%
2019							8.0	36.4%
2020							8.0	36.4%
2021								35.6%
2022								35.3%
2023								35.7%
TOTAL	367 ¹	436	2,497	112	1,254	150	100	

Notes:

- 1) Capacity equivalent to meet CO2 goal
- 2) Potential natural gas combined cycle additions upto 1,000 MW by 2019, subject to change
- 3) Includes Wind additions and expirations
- 4) Additional note: Plan assumes achievement of 800 MW of DSM goal

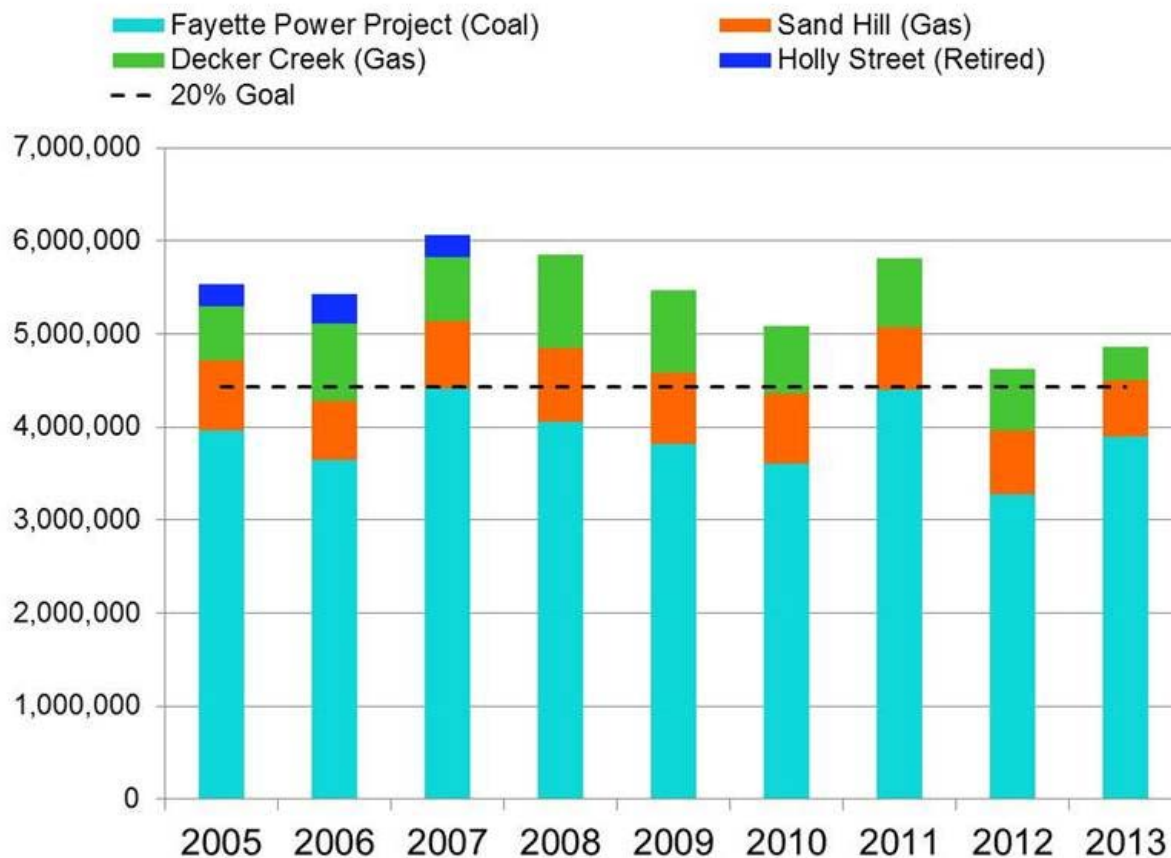




Key Performance Indicators: Total CO₂ Emissions

Austin Energy today has almost the same total generating capacity (MW) that emits CO₂ as in 1990, despite Austin's growth – compared to Texas up 42%.

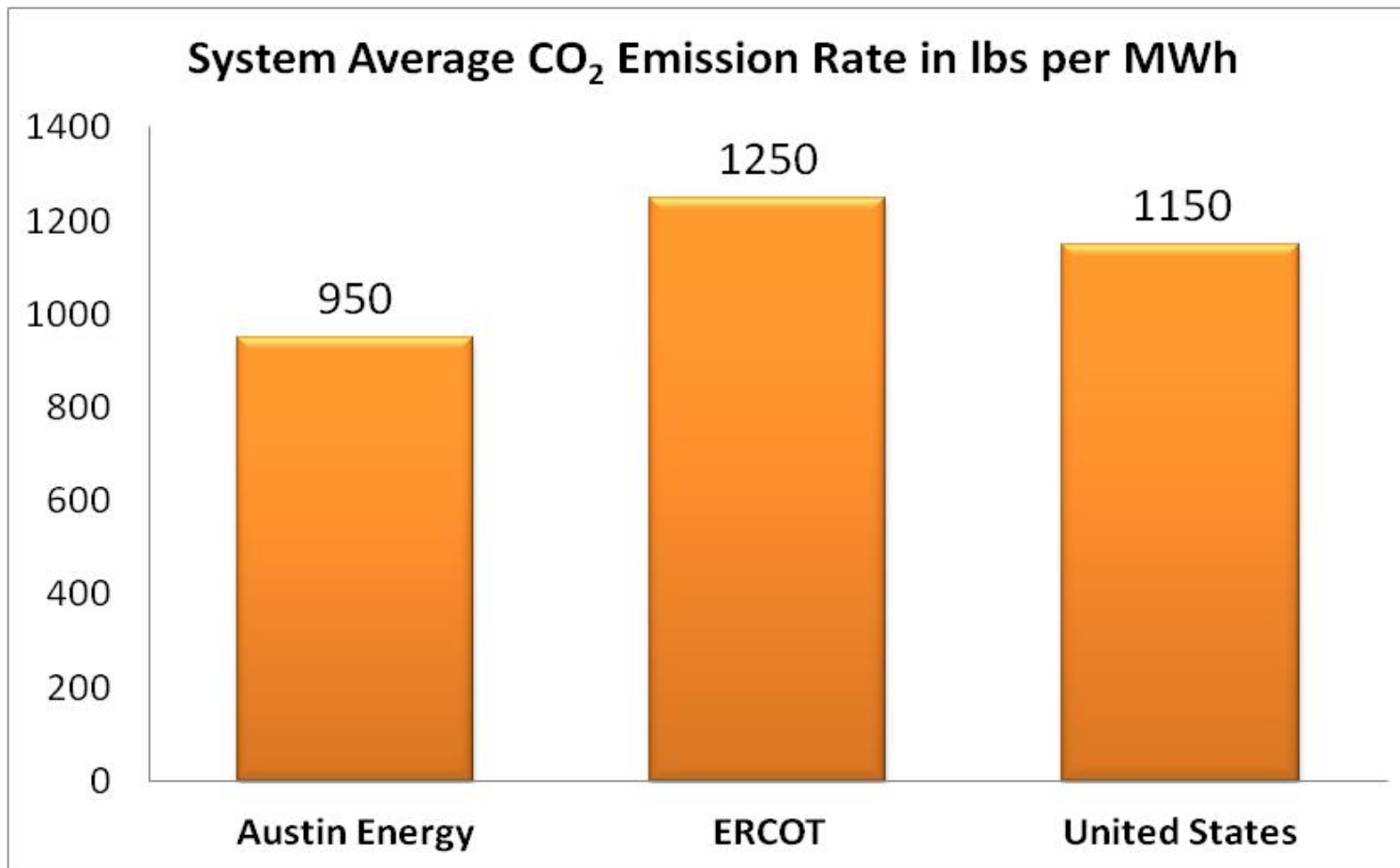
Austin Energy Annual Power Plant CO₂ Emissions





Key Performance Indicators: Average CO₂ per MWh Generation

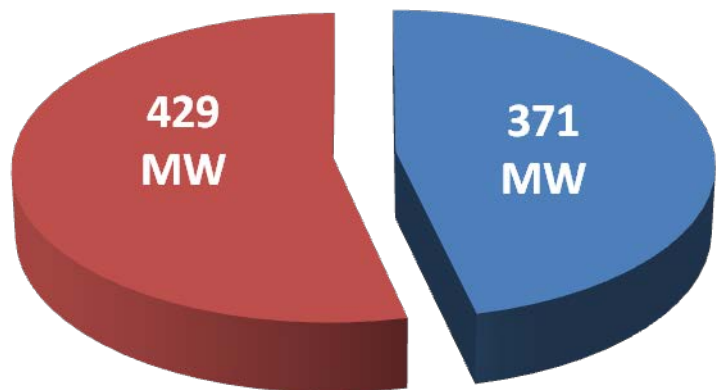
Austin Energy's system average CO₂ emissions rate has decreased 14% since 2005 due to renewable additions. It will continue to decrease as new wind resources come online.



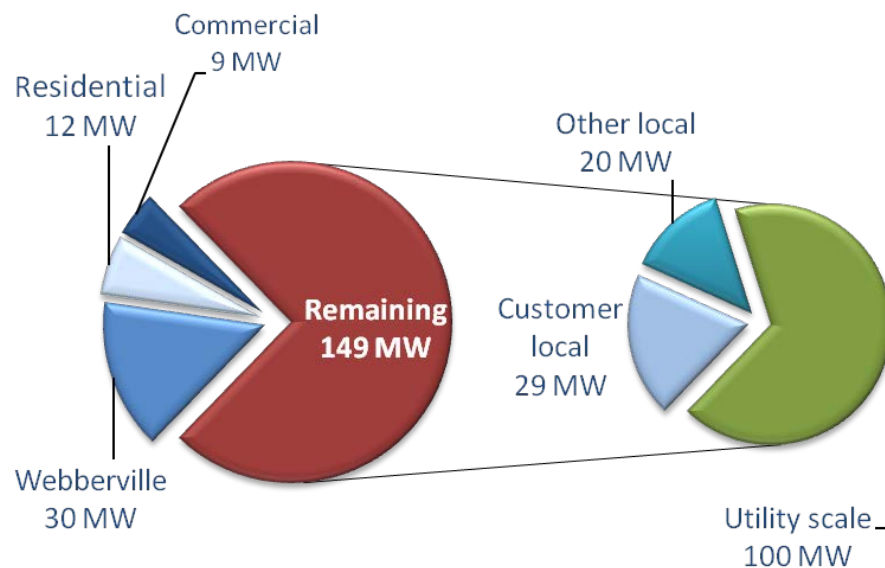
EE Savings

Remaining:
2014 - 2020

Achieved



Solar - Installed & In Progress





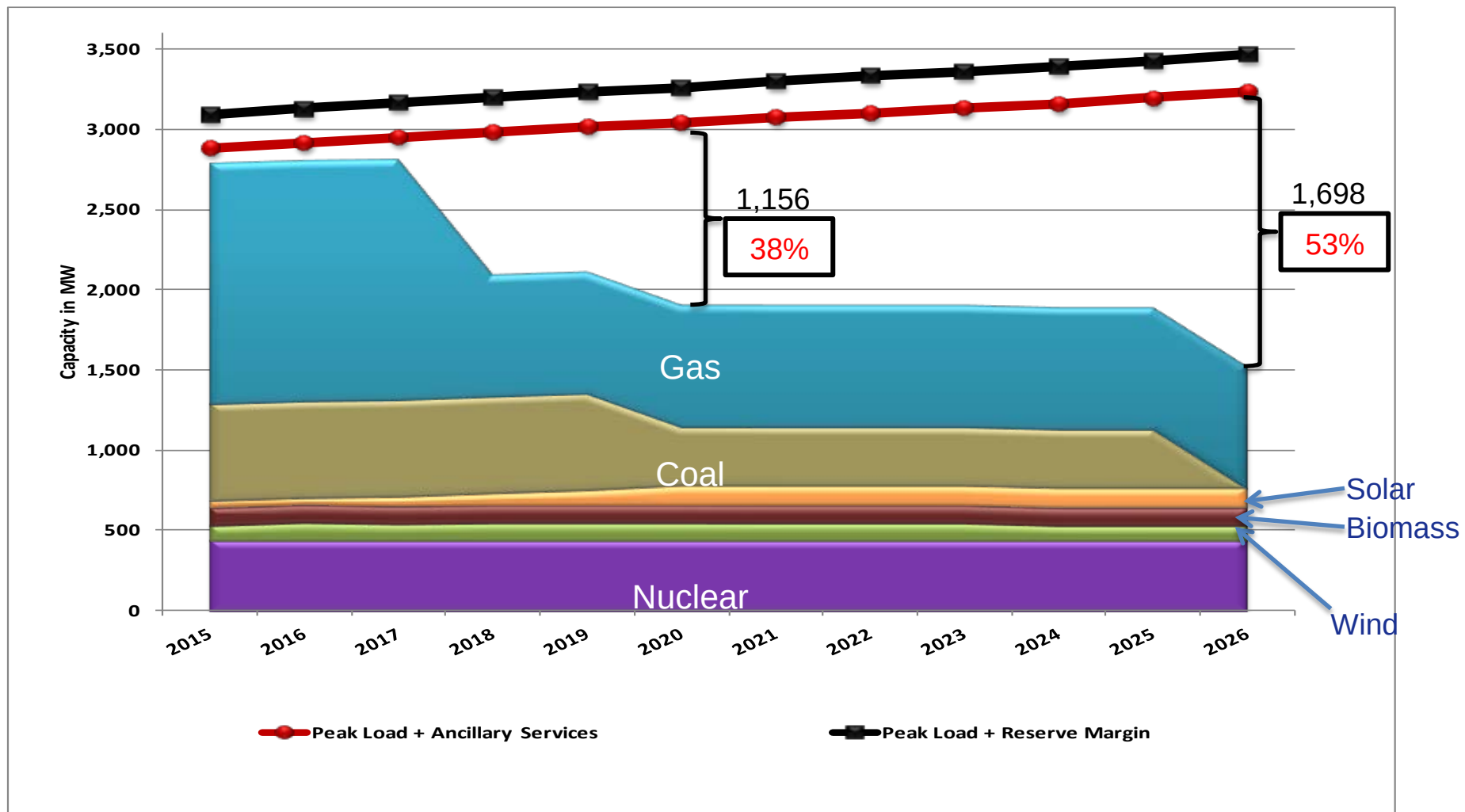
Resource Planning has Changed

- Resource planning used to be an exercise of developing the least cost capacity plan to meet the peak load of the utility
- Generation in the nodal market is now one of many tools used to mitigate risk to customers and the utility
- Given the objectives of ERCOT to maintain reliability and efficient markets and Austin Energy's objectives to manage cost for its customers, the following tools are used to manage market risk:
 - Physical assets
 - Financial strategies
 - Fuel diversity
 - Congestion rights
 - Demand side resources



AE Peak load Forecast vs Resource Capacity Gap

- Resource planning is about optimizing capacity mix
- Austin Energy strategies provide low cost, diversity and flexibility





New Resource Considerations and Tradeoffs

- Considerations
 - Cost-effective and mature technology
 - Good operating history and performance
 - Multiple suppliers and fuel availability
 - Defined permitting requirements
- Tradeoffs
 - Dispatchable vs. non-dispatchable
 - Fixed vs. variable operating costs
 - Flexibility



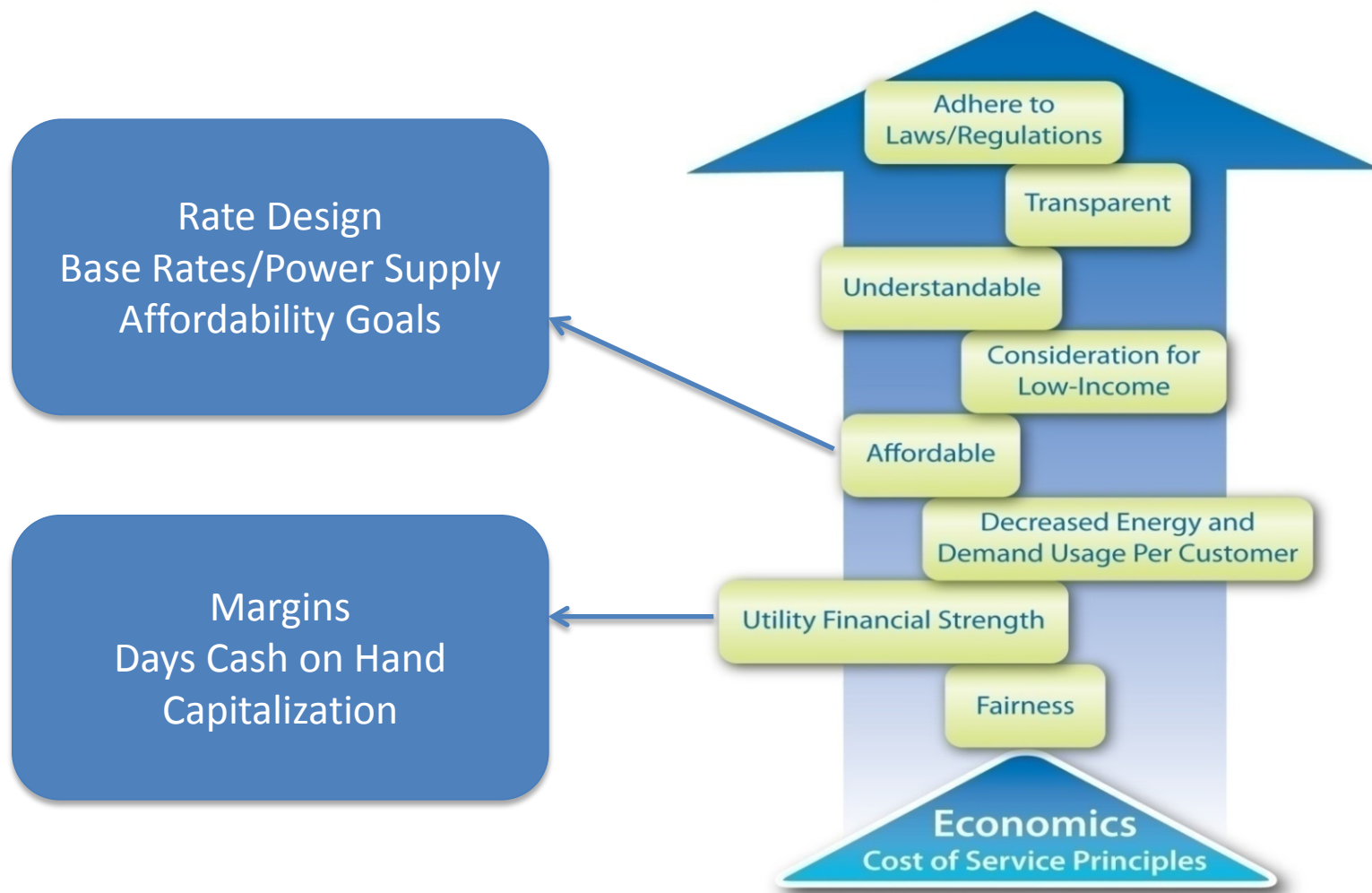
Resource Planning Guiding Principals

- All Resources are evaluated in the context of ERCOT Nodal Market
 - Resource costs include
 - Capital, Fuel/PPA, Operations & Maintenance wherever applicable
 - Based on EIA, AE estimates & other sources
 - Revenues include
 - Energy & Ancillary services applies to all if they can provide
 - Reserve adder (Operating Reserve Demand Curve) applies to all, except renewables
- Consider entire AE portfolio net cost
 - 10-year horizon: 2015-2024 (Extended to consider end effects)
 - ERCOT market LMP forecast fundamentals
 - Load cost + resource cost – resource revenue
 - Across sensitivities per key uncertainties
 - Load (ERCOT & AE)
 - Gas price
 - Carbon
 - Market design
 - PTC/ITC

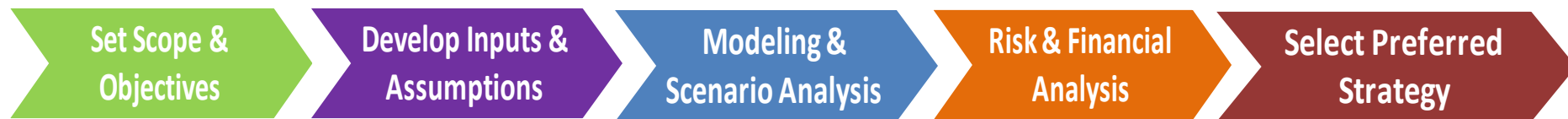


Financial Goals, Balancing Competing Objectives

Austin Energy's Strategic Direction

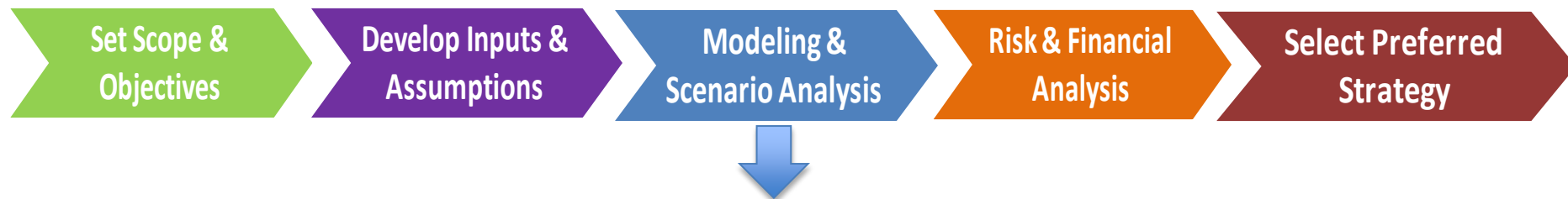


Resource Planning Process



- Held 3 stakeholder input meetings
 - ✓ Tuesday 2/25 – 10 a.m. to noon
 - ✓ Tuesday 2/25 – 6 to 8 p.m.
 - ✓ Thursday 2/27 – 1 to 3 p.m.
- 102 total stakeholders attended meetings
- Requested feedback from stakeholders
 - ✓ Presentation + Q & A (Video taped)
 - ✓ Interactive booths : deep dive with subject matter experts
 - ✓ Note cards & online Q&A
 - ✓ Resource allocation exercise
 - ✓ Online survey
- Supported Generation Resource Planning Task Force - April - June

Resource Planning Process



- Currently working on the scenario analysis
- Potential scenarios include
 - Increased renewable goals
 - Replacement / Retirement scenarios
 - Increased demand side management goal
- Scenarios cover a wide range of values for key uncertainties such as gas price, carbon price, capacity market, extension of PTC/ITC variations
- In total
 - 8 Broad Scenarios
 - 30+ Base plans
 - 210+ Sensitivities
- Plan is to Present to the Council the 2014 Generation Plan update by end of Sep-2014



Questions?

The original and complete slide decks as well as further updates can be found on Austin Energy's home web page:

austinenenergy.com

Follow the 2014 Generation Plan Update link