Nashville Carbon Competitiveness

Prepared by David Gardiner and Associates

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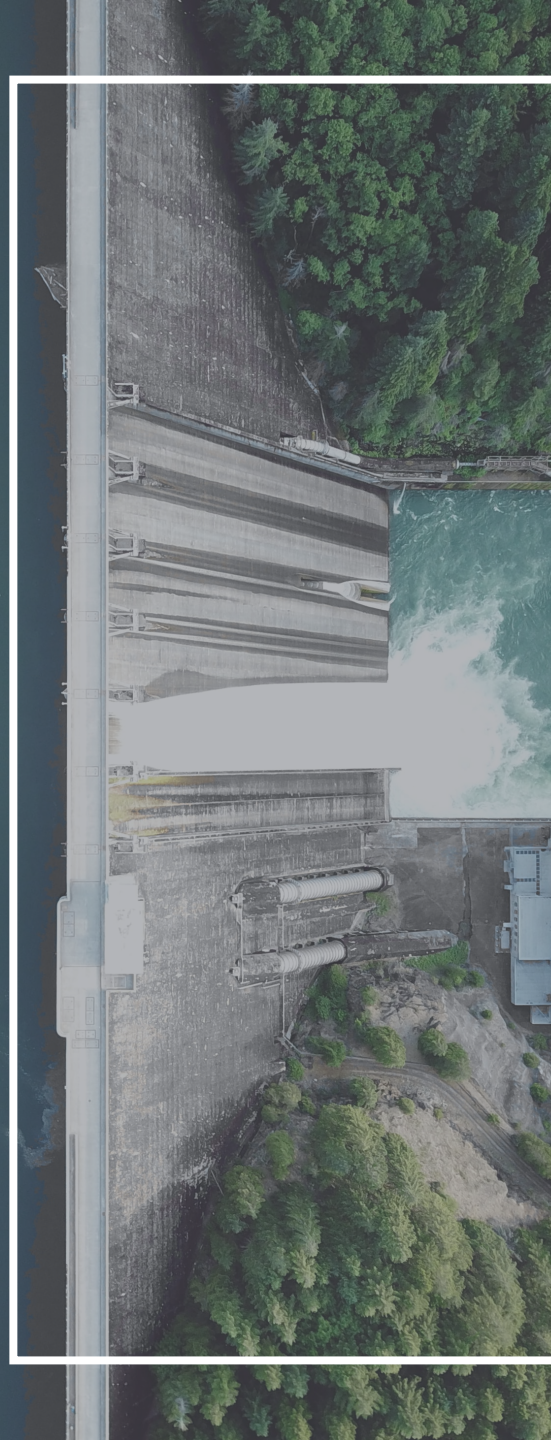

Overview

The Nashville Carbon Competitiveness report analyzes three questions to assess how the sources of electric power in the Nashville area may affect the area's competitive position for attracting new businesses:

1. Are Fortune 500 companies increasingly prioritizing climate and clean energy factors into their economic development decisions?
2. How do the climate and renewable electricity plans of the Nashville-area grid compare to the plans of power providers for six similarly sized cities—Austin, Charlotte, Columbus, Indianapolis, Minneapolis, and Raleigh—with whom the Nashville area competes for new businesses (competitor cities)?
3. To what extent will the electricity generation plans for the Nashville-area make it less attractive as companies consider expanding, relocating, or siting new facilities?

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Key Findings

1. Corporations are stepping up their efforts to focus investment and new facilities in areas that offer renewable and low- or zero-carbon electricity resources.

2. The Nashville-area grid is delivering:

   - ***Fewer Greenhouse Gas Reductions*.** TVA's carbon reduction target is an "intensity" target vs. an "absolute" target, and TVA has made no commitment to reduce emissions beyond 2030.

   - ***Less Renewable Energy*.** Looking out to 2050, TVA's percentage of total renewable energy capacity is on average 40% less than each competitor city.

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Question 1:

Are Fortune 500 companies increasingly prioritizing climate and clean energy factors into their economic development decisions?

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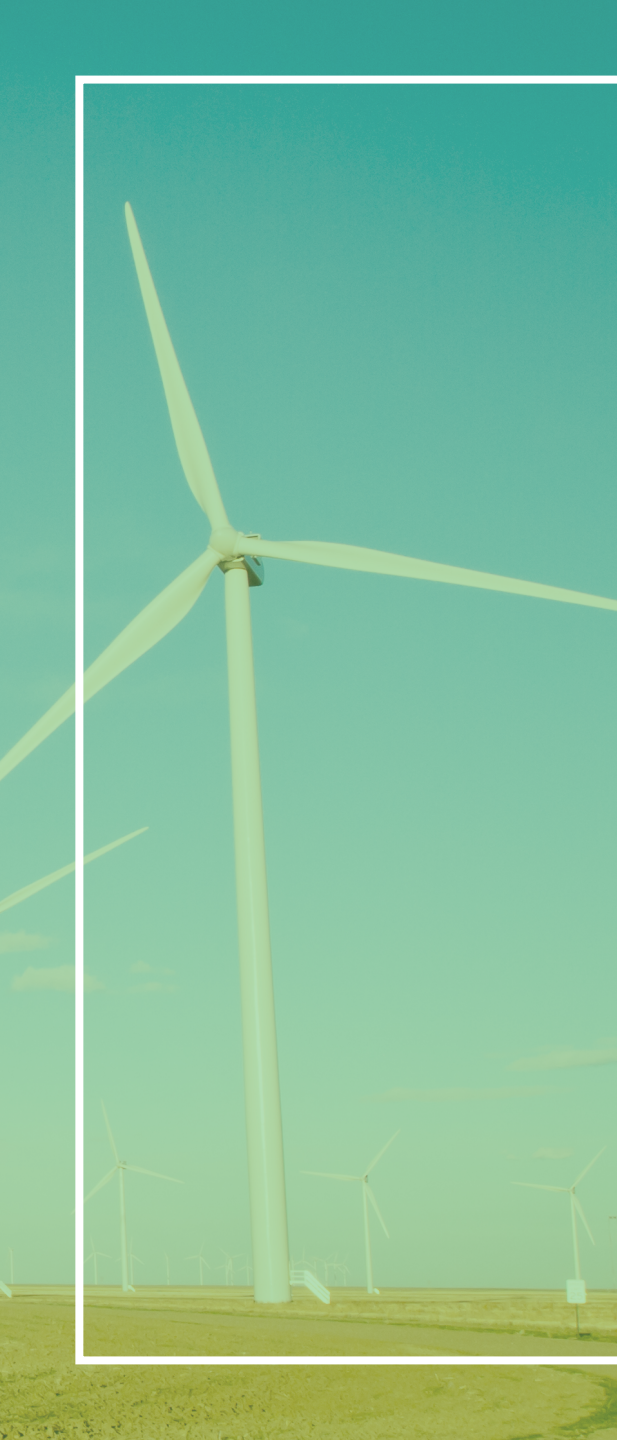

Corporate Climate-related Commitments by Type (2019)

	GHG Target	Renewable Energy Target	Other Targets (EE and EVs)	CDP Supplier Engagement A Rating
Fortune 100	67	38	30	14
Fortune 500	242	66	77	31

	We Mean Business	Science Based Targets Initiative (SBTi)	RE100
Companies with HQ in the US*	231	156	75

*Companies include private companies and companies outside the Fortune 500

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Corporate Statements on Renewable Energy and Location Decisions

Company	Person	Quote
Facebook	Bill Weihl, Director of Sustainability	"Access to clean energy is one of the key criteria that we consider when looking for new sites for data centers. We want to find places where ideally we can get 100 percent clean energy into our facility." (May 2016)
Adobe Systems, Akamai Technologies, eBay, Equinix, Salesforce	Statement from joint business letter	"Many of our companies have made public commitments to reduce our greenhouse gas footprint and invest in clean energy—in some instances, to procure 100 percent renewable energy for all of our operations. We intend to successfully fulfill our commitments to renewable energy, and access to cost-competitive renewable energy is a significant factor in deciding whether to locate or expand new data centers within the Commonwealth." (Virginia, September 2018)
Google	Robert Parker, Senior Lead of Data Center Energy and Location Strategy	"Ten years ago, nobody was offering us renewable energy, so we signed [power-purchase agreements]. Our goal is to decarbonize the grid. If our utilities will offer us products that we're looking for on a cost-effective basis, then that helps everybody." (October 2019)

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Question 2:

How do the climate and renewable electricity plans of the Nashville-area grid compare to the plans of power providers of six similarly sized cities with whom the Nashville area competes for businesses?

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Primary Electric Service Provider by City

City	Utility	Description
Austin	Austin Energy	Austin Energy is a municipally owned and the primary electric utility for the City of Austin and surrounding areas.
Charlotte	Duke Energy Carolinas	Duke Energy Carolinas (DEC) is a subsidiary of the investor-owned Duke Energy Corporation and the primary electric utility serving the City of Charlotte and surrounding areas.
Columbus	AEP Ohio	American Electric Power (AEP) Ohio is a subsidiary of the investor-owned American Electric Power Company, and the primary electric utility serving the City of Columbus and surrounding areas. (Note: AEP operates in Ohio as the Ohio Power Company in two rate zones, Columbus Southern Power and Ohio Power. These companies are jointly managed under the name "AEP Ohio.")
Indianapolis	Indianapolis Power and Light	Indianapolis Power and Light (IPL) is a subsidiary of the investor-owned AES Corporation and the primary electric utility for the City of Indianapolis and surrounding areas.
Minneapolis	Xcel Energy	Xcel Northern Power States Company is a subsidiary of the investor-owned Xcel Energy Incorporated and the primary electric utility serving the City of Minneapolis and surrounding areas.
Nashville	**Nashville Electric Service (NES)/ Tennessee Valley Authority (TVA)**	**Nashville Electric Service (NES) is municipally owned and provides electricity distribution service to the Nashville areas. NES purchases electricity from TVA under an all-requirements contract. In 2019, NES entered a new contract with TVA, requiring NES to give a 20-year notice to terminate the all-requirements contract.** **The Tennessee Valley Authority (TVA) is a corporate agency of the United States that provides electricity for business customers and local power companies serving 10 million people in parts of seven southeastern states.**
Raleigh	Duke Energy Progress	Duke Energy Progress (DEP) is a subsidiary of investor-owned Duke Energy Corporation and is the primary electric utility serving the City of Raleigh and surrounding areas.

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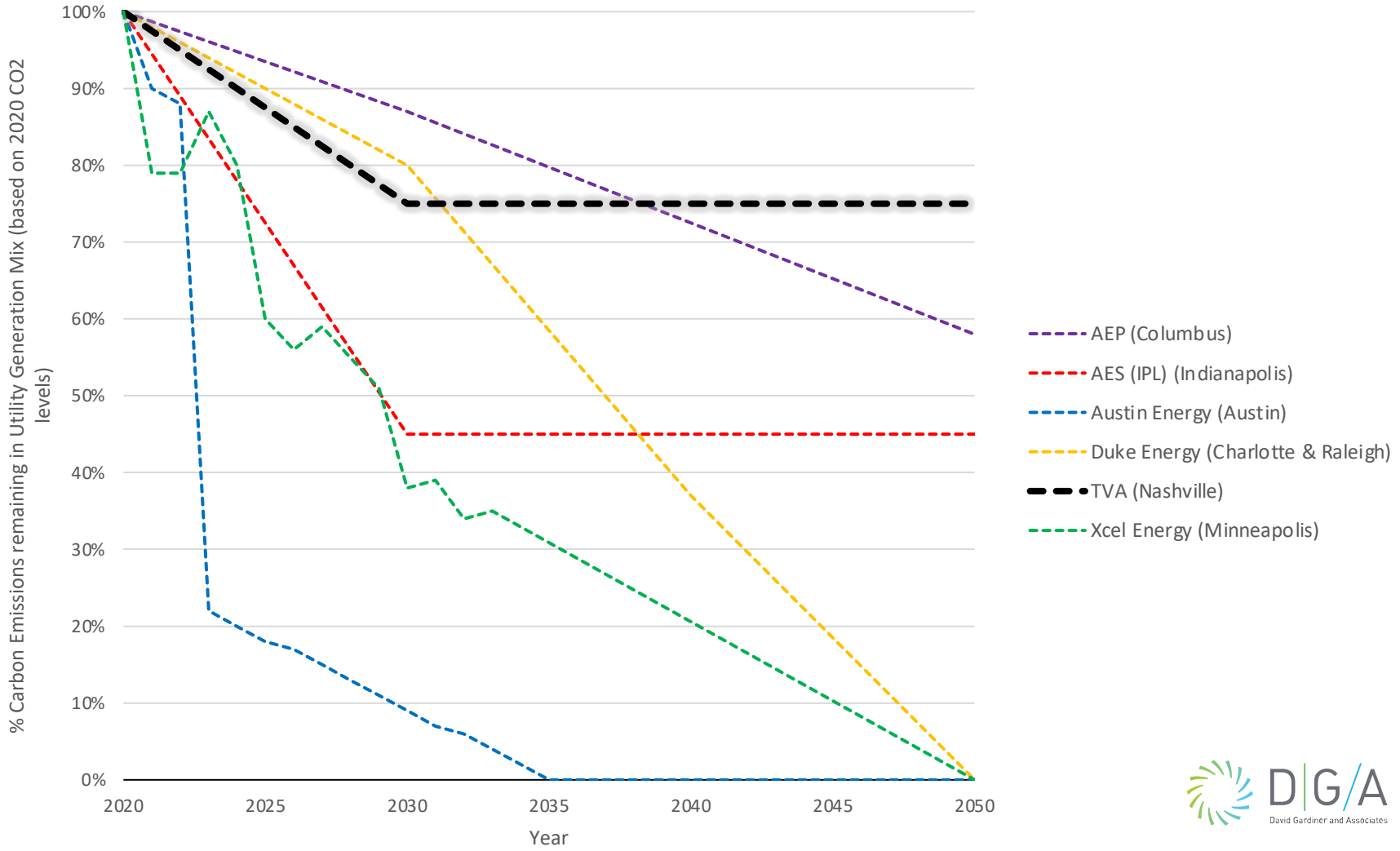
Comparison of Utility Carbon Reduction Projections from 2020-2050



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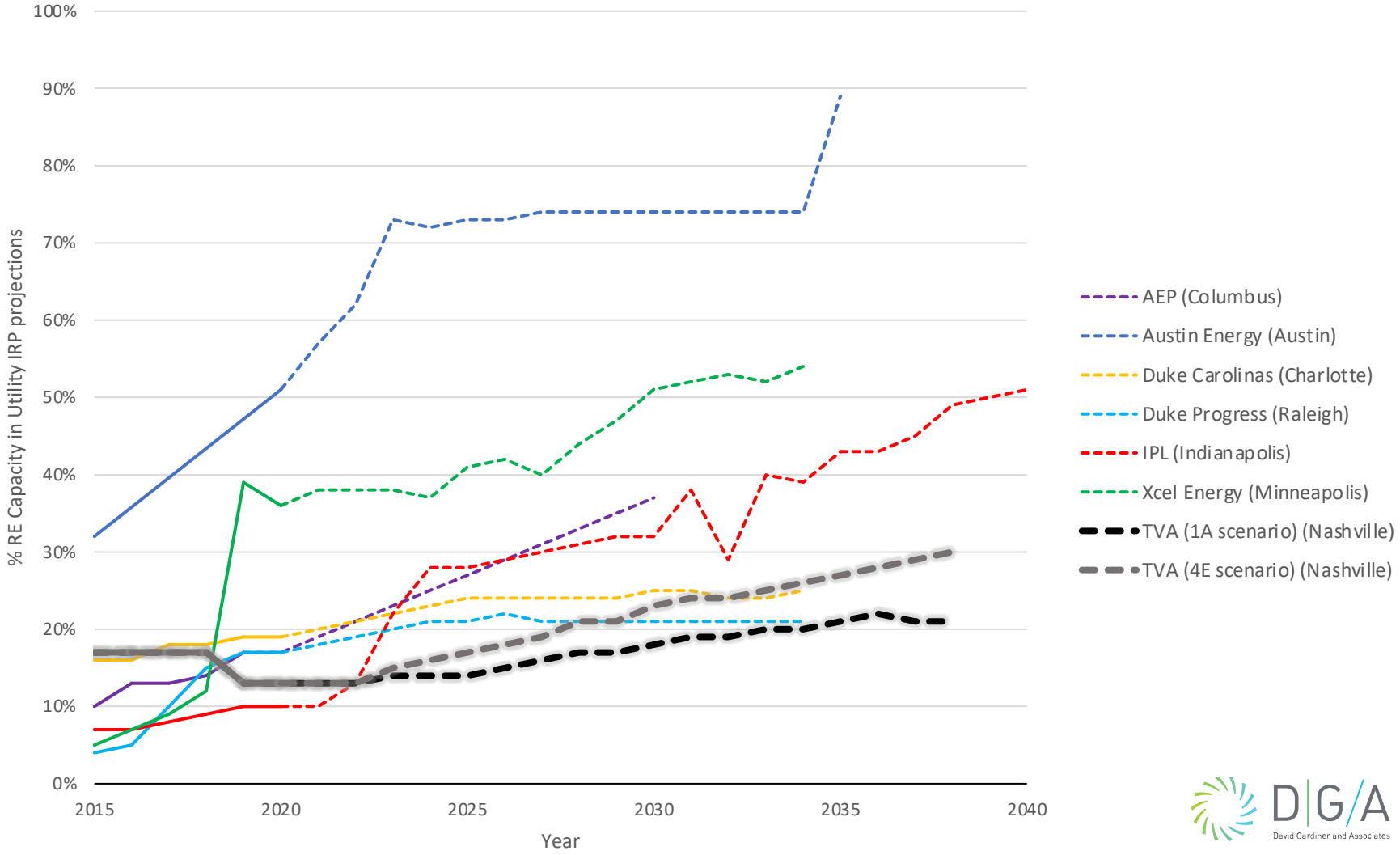
Question 2

Comparison of Utility Renewable Energy Share of Generating Capacity (IRP Projections)



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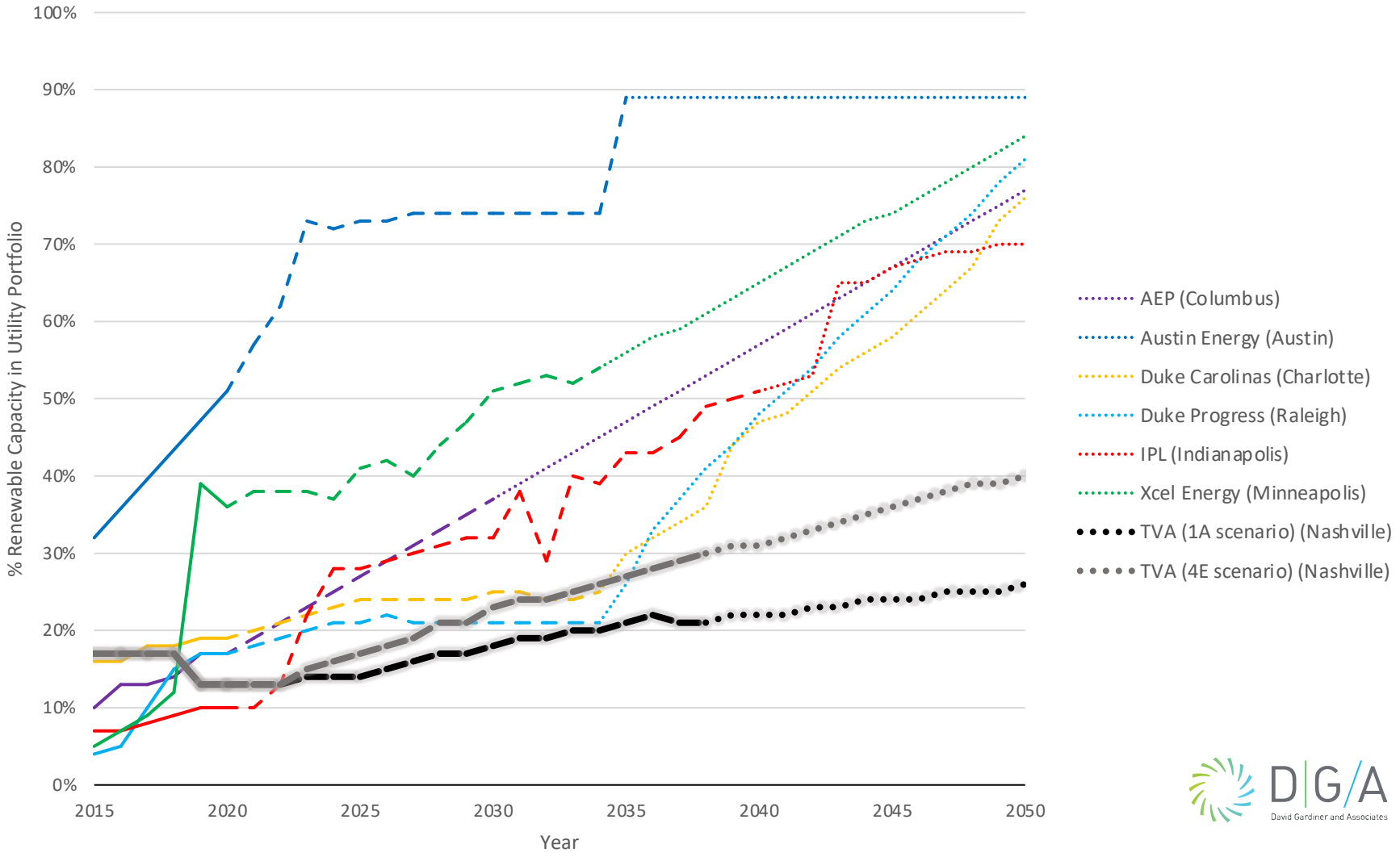
Comparison of Utility Renewable Energy Share of Generating Capacity (2050 Projections)



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Question 3:

To what extent will the electricity generation plans for the Nashville-area make it less attractive as companies consider expanding, relocating, or siting new facilities?

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Recommendations

1. The Nashville area should work with its primary electric service provider to set a 2050 carbon reduction target that achieves at least 80 percent, and preferably 100 percent, absolute emissions reductions by 2050.

2. The Nashville-area grid should substantially increase its planned renewable generation capacity and set ambitious renewable energy goals as part of any 2050 carbon reduction targets.

3. The Nashville-area grid should provide more options for small to medium-sized and other local business to purchase renewable energy and to help these businesses decarbonize in order make them more attractive partners for large corporations with GHG and supply chain commitments.

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Thank You.

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