A4S CFO LEADERSHIP NETWORK

SCENARIO ANALYSIS

Practical example: National Grid

THE PRINCE OF WALES'S CHARITABLE FUND

nationalgrid

WHAT

National Grid supplies gas and electricity, safely, reliably and efficiently to millions of customers and communities. We own and operate the high voltage electricity transmission network in England and Wales and the high-pressure gas transmission network across the UK. In the US, our gas and electricity businesses supply energy directly to customers.

We are at the heart of a transforming energy system and our focus is on decarbonization and embracing cleaner, renewable energy. As part of that, in 2019, we set a target to reduce our direct greenhouse gas emissions to net zero by 2050.

By the time we reach that goal, our business is likely to be unrecognizable. Regulations, technologies and needs will change hugely, no matter how governments and societies choose to address the challenge of climate change. The question is, how will they change and how can we plan a successful strategy amidst the uncertainty? We decided to use scenario analysis as a tool to help us plan ahead.

WHY

Scenario analysis helps us consider and prepare for the range of possible futures that can diverge from the present. Our scenario analysis feeds directly into our Strategic Planning and Risk Management departments, giving real, valuable insights to support our business. It helps us capture new opportunities and mitigate against new risks that may emerge.

Our scenarios can guide us towards our net zero strategy. For example, we might work towards enabling the shift to electric vehicles and heat pumps on our electric networks or understanding what it could take to run fuels like hydrogen and renewable natural gas through our gas networks. In the competitive part of our business, long-term scenario insight also helped inform our decision to acquire a leading US solar and wind developer.

HOW

Our process of scenario analysis falls into four steps:

1. Design a central narrative for the scenario, a challenging but plausible story that reflects just how much the world might change.

2. Translate the story to a quantitative picture, creating tools and models that can generate realistic results.

3. Run the analytics to find out what the models mean for energy markets.

4. Draw specific implications for the business and use them to make appropriate choices and address risks.

We refresh our scenarios or develop new ones every two to three years. Because of the significant changes since our last scenario exercise in 2016 – most importantly, the net zero target set by the UK Government – we decided to start anew for 2019/2020. We developed four new scenarios; two net zero scenarios where society aggressively pursues and achieves its goals and keeps the global temperature rise to 1.5°C, one where society makes progress but misses the targets, and one where we fall further short of those goals.

While we had a centralized team working on the scenarios, we involved broader sections of the business from the beginning. By keeping everyone informed, and getting input, steering and challenges from different groups, we made business units a key part of the process. When it came to getting the scenarios signed off and finalized, we found that the business units were already using them in their decision-making processes.

MODELLING QUANTITATIVE REAL-WORLD DATA

Adapting the scenarios into functional quantitative models is an area where we are still learning. Our market fundamentals team carries out long-term forecasting of the electricity and power markets based on our most likely base case, going out to 2050. By making use of our in-house expertise and commissioning bespoke tools, we can better understand the value of energy generation in the future and what financial returns would look like compared to today.

GUIDING KEY BUSINESS DECISIONS

The key reason for using scenarios is to stress-test our portfolio. If a business performs moderate-to-strong in all four scenarios, it is an indication of resilience. If another one struggles in all but one scenario or sees significant downsides in any, we can question if that is a business we want to be in or decide to make strategic changes.

In any net zero scenario, the operating environment and regulatory framework will become increasingly aligned with decarbonization goals. Our scenarios can guide us towards our net zero strategy. For example, we might work towards enabling the shift to electric vehicles or understanding what it could take to run fuels like hydrogen and renewable natural gas through our networks. In the US, where our license

allows us to own energy generation, this approach led us to acquire a leading solar and wind developer.

One of the key risks we see in all scenarios is that electricity demand will have sharper peaks, and will grow substantially as multiple sectors shift to electrify and to decarbonize. Our business units have been working together to understand how we can anticipate those changes and manage and invest in our networks to make sure they are fit for purpose in the future.

Unlike our stakeholder-run Future Energy Scenarios, the scenario analysis is not published externally. Instead, we use it internally for strategic and risk management purposes. However, it does provide useful information for our investors. In our 2019/2020 TCFD disclosure we used two of our scenarios to compare the key risks we would face in a 1.5°C vs a 4°C temperature rise. The full TCFD disclosure is available in our Annual Report alongside our commitment to being a responsible business.

TOP TIPS

MAKE YOUR SCENARIOS EASY TO CONCEPTUALIZE

If scenarios are clear and memorable, people will use them more effectively. Make each a distinct narrative and keep to a limited number – we chose four.

GET EVERYONE ON THE SAME PAGE

A project will only succeed if everyone understands what the scenarios are, and what they are not. Ultimately, they do not forecast the future; they provide insight to guide our decisions.

COMMISSION BESPOKE TOOLS

Quantitative models are vital to show the real-world implications of decisions. While we had in-house capacity to model electricity markets, we commissioned external experts to design bespoke tools for gas markets.

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