Renewable Energy Research and Planning Jesse Gubert, UNH Sustainability Fellow Mentors: Robin Tindall, Hypertherm

Introduction

Hypertherm is committed to considering the impact its products have on people and the environment. In 2016, the company explored the installing solar panels on several of its manufacturing buildings in NH. Ultimately, it decided to focus on energy reduction and efficiency efforts. Since 2012, Hypertherm has purchased RECs to account for all its US-based electricity consumption (scope 2 emissions).

In an effort to move beyond RECs, Hypertherm is now exploring its renewable energy procurement options. My work this summer is focused around elaborating on these options as they relate to Hypertherm and its various locations.

Objective

A report and recommendation on a renewable energy procurement strategy for Hypertherm.

Approach

Background research into the renewable energy markets, regulation, electricity consumption for Hypertherm locations, and the carbon intensity of electricity at those locations.

| Hypertherm Location | $g CO_2/KWh$ |
|---------------------|--------------|
| Quebec | 1.2 |
| Washington | 94.8 |
| Brazil | 98.0 |
| New Hampshire | 112.9 |
| New York | 199.1 |
| Italy | 256.2 |
| EU Average | 295.8 |
| Singapore | 419.2 |
| Germany | 440.8 |
| US Avg | 457.7 |
| Minnesota | 481.3 |
| Netherlands | 505.2 |
| Korea | 540.0 |
| China | 711.0 |

Carbon Intensity of **Electricity where** Hypertherm Operates³⁻

Based on electricity generation within the geographic boundaries of a location. Does not account for net imports of electricity across those geographic boundarie. Quebec, Washington and Brazi have high rates of hydroelectr generation, while the Netherlands, Korea and Chin rely much more on fossil fuel New Hampshire's primar generation source is nuclea

Presentations and interviews with high-level internal stakeholders to gather key motivations for Hypertherm to pursue renewable energy procurement.

Chief Financial Officer

VP, People, Community, & Environment VP, Corporate Development & Strategy

VP, Engineering **Functional Team Leader**, **Facilities Team Leader, Utility Operations**

Preliminary Results

Hypertherm's options are complicated by the geographical breadth of their operations. Energy market regulations vary significantly from location to location. Moving beyond purchasing unbundled RECs will necessitate a portfolio approach to their renewable energy procurement.

Hypertherm senior management is invested in renewables for reasons beyond the bottom line:

Sustainability goals Alignment with core values **Corporate engagement Continuous improvement** philosophy

Long-term orientation **Resiliency of electricity grid** Assist with planning (steady, predictable pricing) **Raising industry standards**

Unbundled energy attribute certificates (EACs)



A company purchases renewable electricity from its utility either through green premium products or through a tailored renewable electricity contract, such as a green tariff programme.



Corporate Renewable Electricity Procurement Options¹

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A company purchases attribute certificates of renewable energy separately "unbundled" from its electricity. Examples of certificate systems are guarantees of origin (GOs) and renewable energy certificates (RECs).



Renewable energy offerings from utilities or electric suppliers





A company enters into a contract with an independent power producer, a utility or a financier and commits to purchasing a specific amount of renewable electricity, or the output from a specific asset, at an agreed price and for an agreed period of time.



Production for self-consumption

A company invests in its own renewable energy systems, on-site or off-site, to produce electricity primarily for self-consumption.



Any cost of procuring energy from renewable sources is the cost of doing business well, of doing business responsibly, of doing business as Hypertherm does.



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Discussion

Renewable procurement contracts beyond RECs require longterm commitments (10-20 years) and are complex.

The long-term nature of these deals has been listed as a concern by some senior management.

Some senior leadership is focused on the perceived cost premium for renewable energy; however renewables are now often cost competitive with traditional sources.

To date, the majority of corporate renewable deals have been at a scale much larger than Hypertherm's consumption.

To overcome this demand hurdle Hypertherm could explore an aggregated PPA with other organizations, which is becoming an increasingly used option by smaller organizations.

Renewables Market

Corporate Renewable Deals²



The chart below describes the increasing diversity of sectors participating in renewable deals.²



Impact of Procurement Options¹

Not all procurement options have the same level of impact. "Additionality refers to the net incremental capacity added to the energy system as a direct result of corporate sourcing, beyond what would have occurred in its absence."¹



References

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