

# Vermont Weather Analytics Center Overview

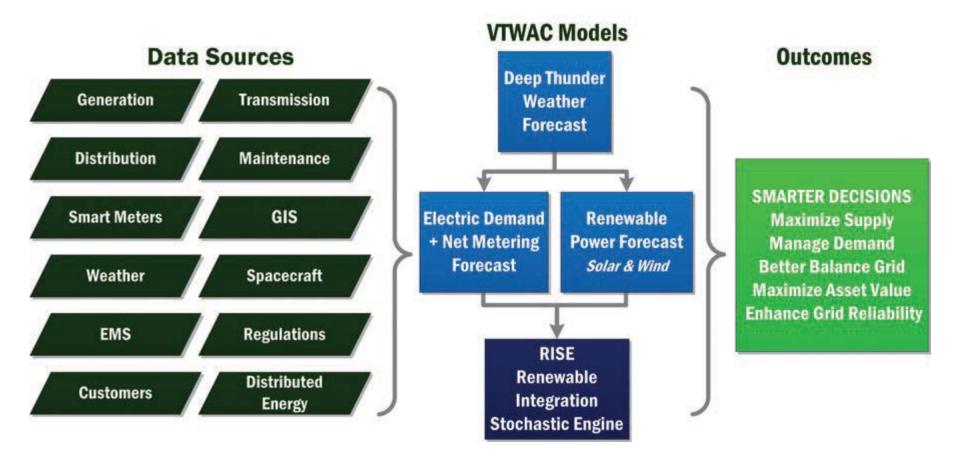
Presentation to Operating Committee

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vermont electric power company



# **Phase I- VWAC**





## Phase II- VWAC

#### Weather

- Icing Models
  - Ice accretion forecasts for transmission lines, distribution lines, and wind turbines
- Weather InSights Environment (WISE)
  - Improved visualizations, i.e. zoom in capability, site specific forecasts, etc.

#### **Platform**

- Enhancements
  - Software to run Deep Thunder, Demand, Renewable models on VELCO's High Performance Computing Cluster (HPCC)

#### Peak Energy Management

- Vermont Monthly Peak
  - Five day monthly peak forecast with probability of occurrence
- Vermont Annual Peak
  - Five day annual peak forecast with probability of occurrence

#### Short and Long Range Planning

- Solar Prospecting
  - Retrospective weather studies to facilitate siting of solar farms



## VELCO's Utopus Insights software pre-purchase

#### Phase II— \$6.78m June 2016 — June 2018

- Weather model improvements
- Peak load management
- Icing prediction model for transmission and distribution lines and wind turbine blades
- Short- and long-range planning
- Personnel training

Perpetual license to run all models and to secure a copy of the object code for all developed IP

# Phase III— \$7m \$4m upfront/\$3m upon successful install

Nonexclusive license with guaranteed performance requirements, updates and service for a new software product "MaestrOS Platform", an enterprise-wide, integrated and open platform for all current and future energy analytics use cases.



Nonexclusive license with guaranteed performance requirements, updates and service for a new software product "**GridXplore**", that enables creation of future grid scenarios through the manipulation of any data stream, e.g. generation, storage, efficiency, peak load. These comprehensive T, D and T&D grid visualizations allow us to posit the separate and/or combined impact of asset, policy and customer choice decisions.

Nonexclusive license with guaranteed performance requirements, updates and service for a new software product "HyperCast", the commoditized version of the hyper-local, best-anywhere accuracy for solar and wind energy generation forecasts that will include improved visualization and integration into the MaestrOS Platform.





# **VELCO/Utopus Strategic Partnership**

	What VELCO Gives	What VELCO Gets
•	Reference Site – serve as a showcase reference site/host for live demonstrations, customer experience forums where the tools are demonstrated to enable prospective utility customers to visit and see a live system working	<ul> <li>Preferred equity equal to 10% of initial valuation (~\$50m)</li> <li>Warrants to purchase additional preferred equity equal to 10% valuation</li> </ul>
•	Value Metrics – help to develop and quantify operational efficiencies, cost savings and revenue generation produced through use of purchased products.  Innovation Pilots – continue to engage in codevelopment and innovation pilots to help define requirements for new product development	<ul> <li>\$7M non-participating preferred liquidation preference</li> <li>VELCO gets priority on first money up to \$7m plus accrued and unpaid dividends</li> <li>option to convert to common if valuation at time of liquidation makes conversion economic</li> </ul>
•	Strategic Presence – collaborate to identify the key utility industry, business, government and interest group meetings, forums, conferences and other events where a UI, a VELCO or a combined UI/VELCO presence would advance UI's interests.	



# VWAC Phase II — Utopus Insights Strategic Agreement Summary

#### **Product Use/Development**

- Value/Metrics Quantifications- help make the "Business Case"
- Market Validation- help understand the value proposition
- Product Feedback- share feedback as we currently provide
- Customer/Market Intelligence- serve on Utopus Customer Advisory Board
- Pilots- continue engagement in co-development
- Employee Exchange- enable employees to serve in growth assignments

#### **Vermont/On-site**

- Reference Site- serve as the showcase for the tools/system
- External Funding- seek and secure external funding (example DOE grants)
- Innovation Expansion- expand scope in-state where appropriate
- Innovation Pipeline- generate awareness and future collaborations for work

#### **External Advocacy**

- Branding- allow use of Company Trademarks and testimonials
- Stakeholder Engagement- provide support and advice for outreach
- Strategic Presence-collaborate with Utopus to identify key industry contacts
- Voice of Innovation- jointly develop and publish papers and articles
- Sales Sustainability- assist in ongoing development of sales and marketing

