



Improving Capacity Factor & Driving Down Costs

Presentation the EPA's 2004 LMOP Conference

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..... Introduction to Encorp



ENCORP VISION STATEMENT

To be recognized as the world's leading provider of network technology and infrastructure-management solutions for the distributed energy market.



ENCORP MISSION STATEMENT

To develop and implement real-time, distributed energy-focused solutions for a wide range of applications through innovative products and services, which are technology-neutral, easily networked, supported 24/7 and deliver high-level, enterprise-wide functionality for our clients' growing needs.



WHAT DO WE DO?

We develop and market software and hardware technology solutions for the communication, control, and networking of distributed energy.



..... Our Experience

Most of Encorp's Projects are Under 10 MW

✓ Number of Installations	1,000+
✓ MWs Controlled by Encorp's Technologies	650+
✓ Encorp Control Systems Shipped	1,450+
✓ Number of Customers	241
✓ Projects Fully Interconnected with the Grid	90%+

Recent Landfill Projects

✓ California	2 Duetz engines (2.7 MW)
✓ California	5 Duetz engines (6.8 MW)
✓ California	2 Duetz engines (2.6 MW)
✓ California	2 Duetz engines (2.6 MW)
✓ Wisconsin	3 Waukesha engines (2.9 MW)

..... Key Issues For Today's Presentation

Issue #1

How can technology be leveraged to meet or exceed pro forma values?

Issue #2

Can technology be used to integrate site level operations inexpensively?

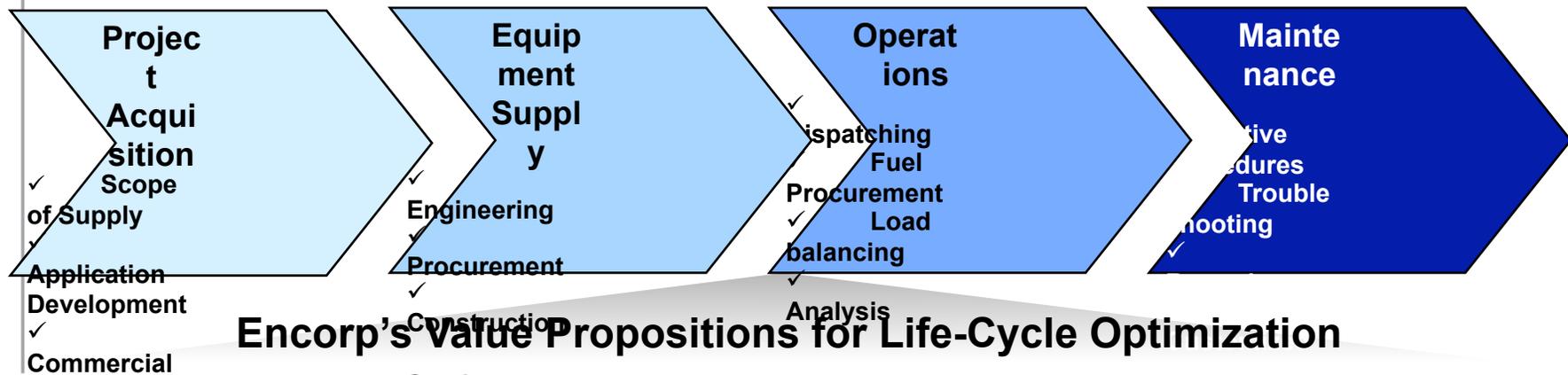
Issue #3

Can remote monitoring transcend a passive role and become a diagnostic tool?



Technology Creates Life Cycle Value

Typical Project Life Cycle for Encorp's Customers



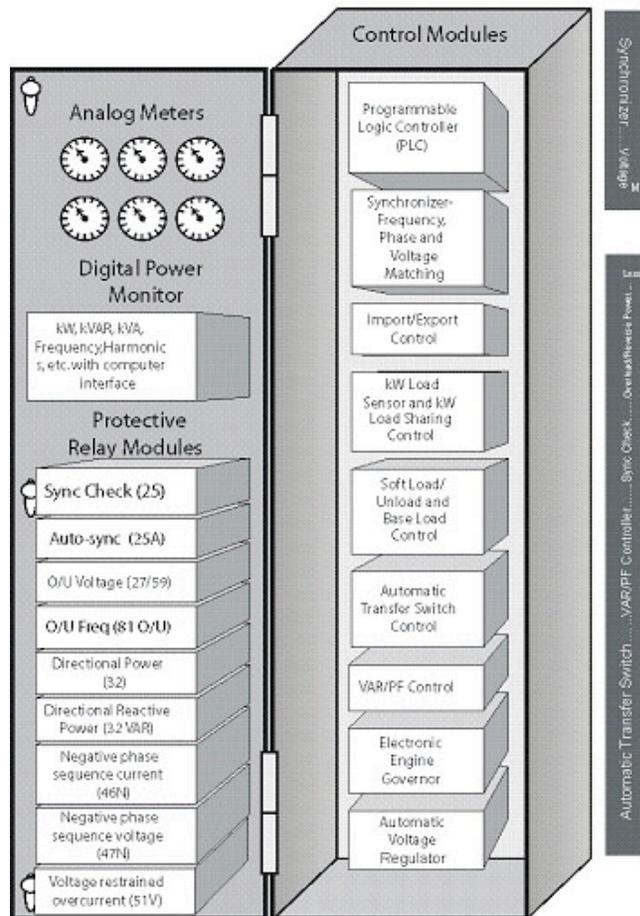
Encorp's Value Propositions for Life-Cycle Optimization

<p>Lower 1st Cost Digital Controls, Protection & Communication Functionality Replace Multiple Analog Devices. Results in lower engineering & transaction costs.</p>	<p>Lower EPC Costs Single set of digital controls integrated in an array of switchgear supported by engineering services.</p>	<p>Long-term lower operational costs Increased information provides optimizes fuel selection, dispatch sequences & load following.</p>	<p>Long-term lower maintenance costs Remote access & fleet aggregation decrease maintenance visits & optimize use of maintenance personnel.</p>
<p>Increase 1st Value Flexible, scalability to interoperate with multiple devices, legacy communications & IT networks.</p>	<p>Increase 1st Value Application neutral & technology neutral but highly flexible controls reduce engineering & commissioning expenses.</p>	<p>Immediate & long-term operational flexibility Multiple applications such as load following, peak shaving, demand response & emergency backup are embedded.</p>	<p>Immediate & long-term reliability, support & flexibility Automated testing, reporting, alarming & notification with EMC technology.</p>

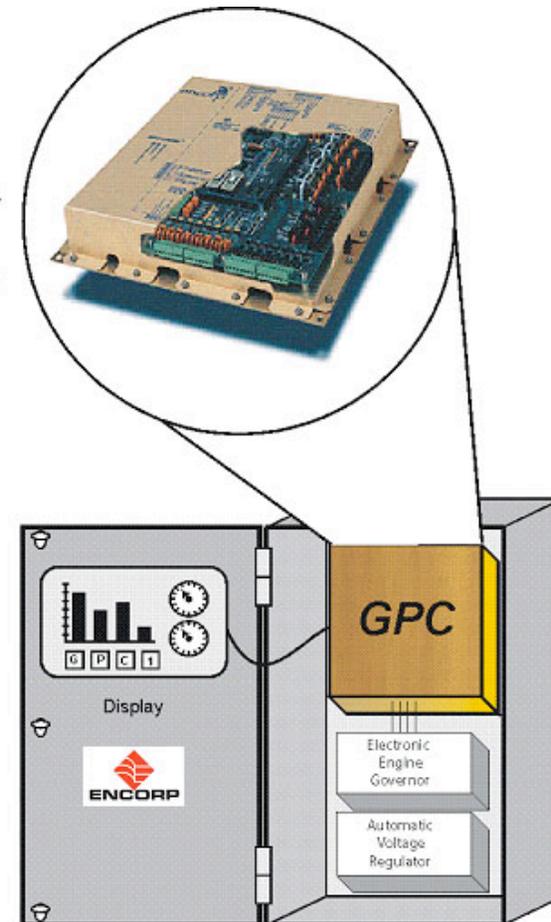
Digital Controls Replace Analog Devices & Enable Local & Remote Interoperability



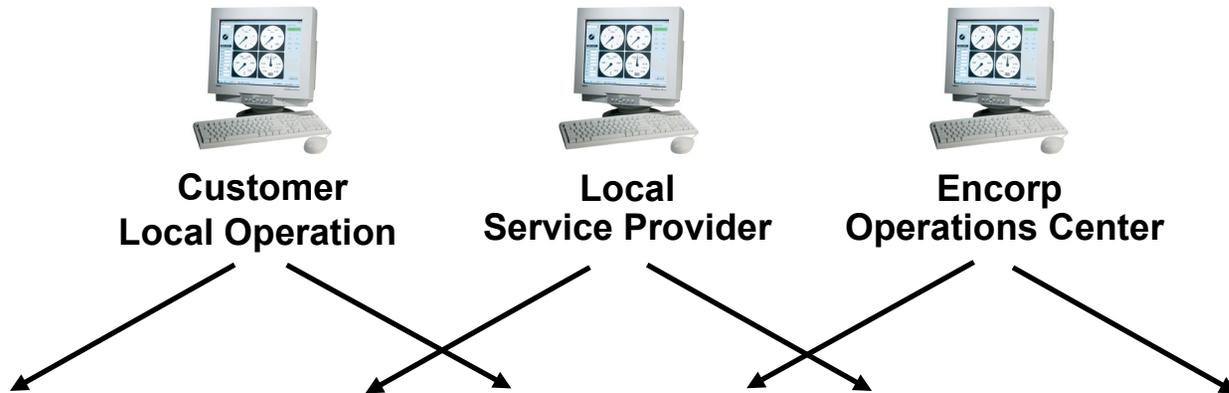
Traditional Method



Encorp's Digital Solution



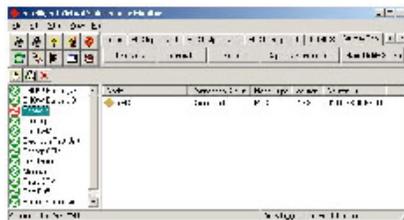
Virtual Maintenance Monitor™ -- Remote Diagnostics



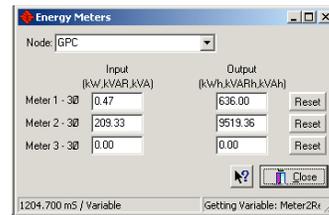
The VMM is a technician's tool, providing live interaction with the DG site.



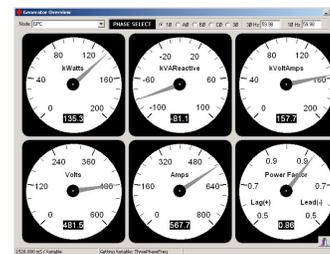
Multiple Site Connectivity



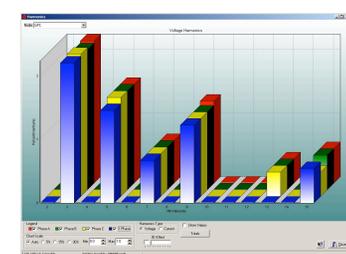
View All Site Analog and Digital Parameters



View and Trend Energy Data



View System and Power Breaker Status



View Power Quality



View System and Power Breaker Status



Energy Management Center – Remote Access to the Total System

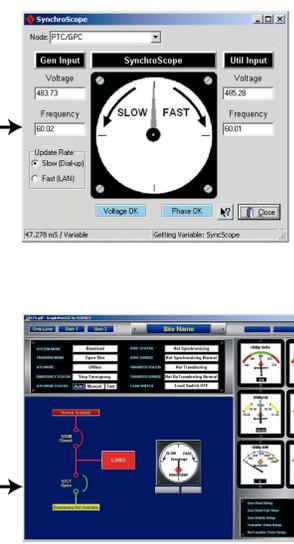
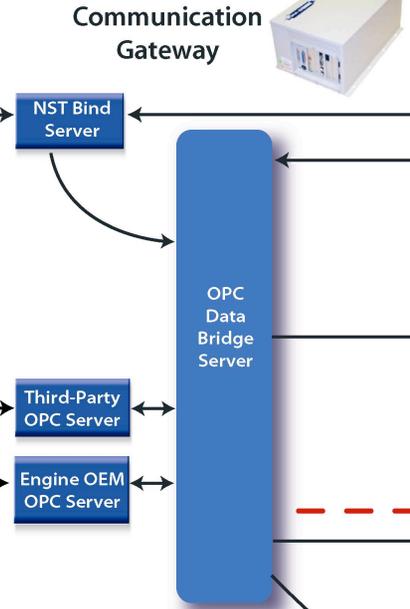
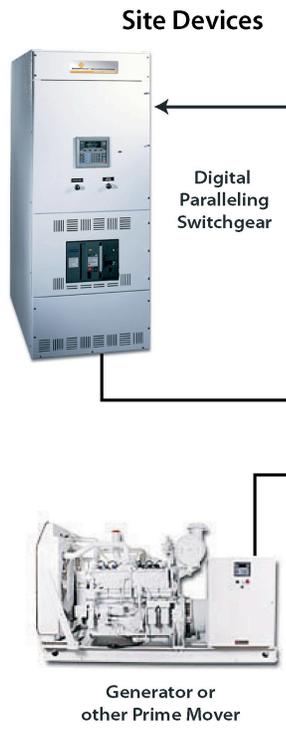
Total Systems Integration, Monitoring, Trending, Analysis & Alarms

REVENUE METER	GAS COLLECTION	ENGINE	THERMAL ENERGY	POWER QUALITY
<ul style="list-style-type: none"> • Voltage (3 phase) • Watts (3 phase) • PF (3 phase) • VAR (3 phase) • Demand in • kWh in • kWh out • Fuel flow rate 	<ul style="list-style-type: none"> • Methane content • Temperature • Humidity • Flow rate • Pressure • Alarm status 	<ul style="list-style-type: none"> • Fuel level • Oil pressure • Coolant temp • Battery voltage • Engine over-speed • Engine over-crank • Fuel pressure • Alarm status • Fuel tank levels • Battery voltage • Ambient air temp • RPM • Hour-meter • Exhaust – O2 • Exhaust - NOx 	<ul style="list-style-type: none"> • Chiller energy (BTU-h) • Water temp out • Water temp in • Water flow rate 	<ul style="list-style-type: none"> • Voltage • Current • Watts • THD • PF • VAR • Frequency (3 phase) • Frequency (single phase) • Demand peak in • Demand peak out • Demand out

ENCORP POWER
 Digital Paralleling Switchgear
 ATS Product Family
 Generator Power Controls

ENCORP INTELLIGENCE
 Family of Gateway Servers

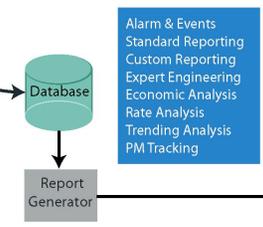
ENCORP INTELLIGENCE
 Virtual Maintenance Monitor



ENCORP SUPPORT
 Managed Service Offering



Reports are faxed or E-mailed directly to Energy Clients



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	ENCORP, INC. 9351 Eastman Park Dr. WINDSOR, CO 80550 PH: 970 674-5300 FAX: 970 674-5399	Encorp Simplified Product Architecture	
	Drawn by: farwellpc	Date: Aug 2, 2002	PROJ#: _____ App By: _____ W:\Graphics\master_arch\texture.ai Sheet 1 of 1

..... Concluding Comments

Issue	Concluding Thoughts
<p>Issue #1 Technology & Project Lifecycle Economics</p>	<p>IT enabled DG sites reduces costs, improves efficiencies and drives up capacity factor. A 1% increase in capacity factor can often improve total project ROI by 10% or more.</p>
<p>Issue #2 Technology & First Costs</p>	<p>Moore's Law applies: Technology rapidly advances as prices decline.</p>
<p>Issue #3 Technology & Remote Operations</p>	<p>We are well beyond passive monitoring. Active remote management is real, proven & rapidly becoming an industry standard.</p>