

Completed (Hypothetical) Project Proposal.
"clouding" identifies Customer-entered information.
(All other data is auto-generated by spreadsheet)

EnergySPICE Industrial-Sector Project Proposal

Submitted by

*ABC Industrial Company
1234 Main Street
Longview , WA 98632*

For

Air Compressor Upgrade for #2 Line

(Cowlitz PUD Project No. **ECA-PR4.1200-XX-XXX**)

Prepared By

*Joe Vendor
Sales Manager - ACME Compressors
360-123-4567*

For

Doug Swier, Conservation Engineer
Cowlitz County PUD
961 12th Avenue, Box 3007
Longview, WA 98632
(360) 577-7544



Completed (Hypothetical) Project Proposal.

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1. Input Form (Cover Sheet)

(Notes: Blank Proposal Form last revised on 10/28/2011 . Password 5-digit "PUDADDR".)

REQUESTED DATA:

CUSTOMER INPUT:

PUD Customer (Company Name):	ABC Industrial Company
Company <u>Mailing</u> Address:	PO Box 0000
City:	Longview
State:	WA
ZIP:	98632

Facility <u>Street</u> Address:	1234 Main Street
Facility City:	Longview
Facility State:	WA
Facility ZIP:	98632

Project Contact Name (employee at Facility):	John Doe
Project Contact Job Title:	Plant Maintenance Manager
Project Contact Phone Number:	360-765-4321
Project Contact Email:	john.doe@abcindustrial.com

Project Title:	Air Compressor Upgrade for #2 Line
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Brief Project Summary (1-3 sentences):	Replace existing 200HP constant-speed, inlet-modulated Air Compressor with Variable Speed Compressor.
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Select TYPE of Project:	INDUSTRIAL (Non-Lighting) Project
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Today's Date (MM/DD/YYYY):	11/8/2011
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Estimated Date to Start Design and/or Ordering of Equipment (MM/DD/YYYY):	1/2/2012
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Estimated Date for Startup and/or Commissioning of Project (MM/DD/YYYY):	5/1/2012
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Requested Expiration Date for Submittal of Completed 'Project Completion Report' (MM/DD/YYYY):	7/1/2012
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Confidential/Proprietary Information? (Yes/No):	YES
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Estimated Project (Incremental) Cost \$:	\$72,050
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Estimated annual site savings (kWh) from Project:	500,000 kWh
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Customer Cost of Power - Approx (\$/kWh)	\$0.0554 per kWh
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Resulting estimated <u>before-Incentive</u> simple payback:	2.6 years
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Current Incentive Rate (\$/kWh):	\$0.25 /kWh
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Current Incentive 'CAP' (% of Project Cost):	70%
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Resulting maximum PUD Incentive:	\$50,435.00
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Resulting Estimated <u>after-Incentive</u> Project Cost:	\$21,615
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Resulting Estimated <u>after-Incentive</u> Simple Payback:	0.8 years
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Customer's selection (through this dropdown list) determines and inserts appropriate program name and incentive rates on other pages.

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2. Eligibility Criteria Checklist

Describe inWhen submitting a Project Proposal, the Customer must respond to questions on the following eligibility checklist. All positive responses to the questions #1 - #13 below are required for participation. The Requirement should be signed by the engineer or manager responsible for the project and submitted with the Project Proposal.

1. All equipment to be upgraded is capable of operating. Equipment off-line for routine maintenance or repair is eligible provided an acceptable baseline for the energy savings can be established. Equipment to be upgraded has not been replaced:	1. YES <input type="button" value="v"/>
2. The design, construction, and installation of the Project will comply with all Federal, State, and local laws, codes, and regulations:	2. YES <input type="button" value="v"/>
3. The project will have no significant adverse environmental impacts:	3. YES <input type="button" value="v"/>
4. Installation of the Project will begin after the effective date of the Formal Contract/Agreement with Cowlitz PUD:	4. YES <input type="button" value="v"/>
5. The project will not be installed without participation in this program:	5. YES <input type="button" value="v"/>
6. The measures are designed to result in improvements in the energy efficiency of electric generation, distribution or use, and will reduce electric power consumption:	6. YES <input type="button" value="v"/>
7. The expected Simple Payback (Project Cost / Annual Energy Savings) is six months or greater: <i>(Note: Auto-filled using data provided on "Input_Form")</i>	YES
8. The proposed Project Equipment has not already been installed or purchased:	8. YES <input type="button" value="v"/>
9. The Customer acknowledges that for the project to be eligible, the expected benefit-to-cost ratio as determined by BPA must be 0.5 or greater:	9. YES <input type="button" value="v"/>
10. This project does not result in fuel switching (saving electrical energy by increasing consumption of other forms of energy):	10. YES <input type="button" value="v"/>
11. The expected life of the energy savings for each measure is greater than one year:	11. YES <input type="button" value="v"/>
12. The proposed baseline for each measure is documented and provides a basis for establishing energy savings:	12. YES <input type="button" value="v"/>

auto-generated by spreadsheet based on data provided on previous page.

CERTIFICATION (Required)

I certify that the information contained in this proposal is true, correct, and complete.

Signed: _____

Title: _____

Date: _____

3. Project Description

Describe in detail the existing equipment, system, or process, and the product or service of your facility and how the proposed Project(s) will modify them. Include estimates of changes in system output. **(Use the space below or, if necessary, provide a separate 'Appendix' to this Proposal).**

Existing System:

ABC Industrial Company has a 200HP constant-speed, inlet-throttled rotary screw compressor supplying all the compressed air requirements for its #2 Production Line. This line has a widely varying air consumption pattern, and is rarely running close to capacity. In fact, it is running at less than 25% capacity an estimated 80% of the time.

#2 Line is a round-the-clock operation except for a 2 week annual maintenance shutdown. Annual operating hours = (365 days - 14 days) x 24 hours = 8,424 hours.

Proposed System:

ABC Industrial proposes to replace the existing 200Hp constant-speed Compressor with a 200HP VFD-Driven Compressor.

4. Energy Savings Estimate/Calculations

Include complete calculations of estimated average annual electric energy savings in kilowatt-hours per year (kWh/yr). Calculations should be based on commonly accepted standard engineering practices. Identify any periodic variations in plant operation causing changes in energy consumption of more than 10 percent from month to month. Show how production rates of estimated energy consumption (kWh/yr) was derived (e.g. theoretical calculations, field measurements, manufacturer's data, etc.) and what assumptions were made in determining the energy savings estimate. Calculations should be clear and easy to follow. **(Use the space below or, if necessary, provide a separate 'Appendix' to this Proposal).**

Along with a quotation for the proposed new VFD-Driven unit, Vendor XYZ provided ABC Industrial calculations and a summary of the estimated annual energy savings. Per the provided summary, estimated annual (site) energy savings are 500,000 kWh. For details and calculations behind this estimate, see supporting Appendix "A1".

5. Measurement and Verification (M&V) Plan

Include a detailed plan to measure the energy consumption at an average system output within a specified time period (e.g., 1 week) and extrapolate to an annual basis. If the energy consumption varies by more than 10 percent from month to month, sufficient measurements must be taken to document the differences. If applicable, include a one-line diagram showing proposed metering locations both before and after the installation. Include a brief description of the instrumentation to be used, the calibration procedure, and the measurement duration and/or data sampling intervals. Also include, details on who will perform verification and when it will be performed, including a detailed metering schedule. If measurement is not possible, a detailed explanation justifying request for variance from this requirement is required. In addition, include a proposed factor, if required, for changes in production, weather, occupancy, or other factors which affect the actual energy savings. **(Use the space below or, if necessary, provide a separate 'Appendix' to this Proposal).**

BASELINE ENERGY:

A three-phase true-RMS kW datalogger will be installed on and record the load on the 200HP constant-speed Compressor. The datalogger will record kW load for a period of (at least) 30 days to obtain a representative sample of year-round operating conditions and the resulting energy requirements of the existing Compressor. The datalogger will be configured to record average power every 15 minutes. The resulting average power during the 30 day baseline period will be labelled as "kW_BASELINE". Because #2 Line operates round-the-clock (except for the 2 week annual maintenance shutdown), there is no need to make sure the baseline period is an exact multiple of entire weeks, as the night and weekend operation of the Compressed Air System is no different than on "days only" on Monday-Friday.

POST-PROJECT ENERGY:

A three-phase true-RMS kW datalogger will be installed on and record the load on the new 200HP VFD-Driven Compressor. The datalogger will record kW load for a period of (at least) 30 days to obtain a representative sample of year-round operating conditions and the resulting energy requirements of the existing Compressed Air System. The datalogger will be configured to record average power every 15 minutes. The resulting average power during the (at least) 30 day post-project period will be labelled as "kW_POST". Because #2 Line operates round-the-clock, there is no need to make sure the post-project period is an exact multiple of entire weeks, as the night and weekend operation of the Compressed Air System is no different than on "days only" on Monday-Friday.

ENERGY SAVINGS:

Will be calculated as ("kW_BASELINE" - "kW_POST") x 8,424 hours.

6. Estimated Project Costs

In the space provided below, include detailed estimates of the Project costs. Itemize major pieces of equipment to be installed, removed, or replaced, and include quantities and costs associated with each piece of equipment. Customers are encouraged to submit (as Appendices to this Proposal) separately-generated Project Cost Estimate documents and/or written quotes from suppliers of the major pieces of capital equipment.

Eligible Project Costs:

1. Solely allocated administrative cost.
2. Energy Review cost including in-house engineering design (staff or contract) and Proposal preparation costs.
3. Equipment costs.
4. Equipment installation costs (including labor and overhead for facilities doing their own installation).
5. Equipment removal or abandonment-in-place costs.
6. Instrumentation and data collection to verify Energy Savings.
7. Permit or inspection fees.
8. Sales tax.

Operation and maintenance costs, depreciation, or any incurred Project expenses that are not listed above may not be reimbursable. For example, customer profit is not an eligible project cost. If you have a project cost question please contact Cowlitz PUD at 360-577-7544.

MATERIALS:

200HP VFD-Driven Compressor (see attached quote Appendix "A2") : \$55,000
 + kW datalogger and accessories to record baseline & post-project : \$2,500
 = **TOTAL MATERIALS: \$57,500**

LABOR:

Removal of existing constant-speed Compressor (2 mandays) : \$1,200
 + Installation and commissioning of VFD Compressor (8 mandays) : \$4,800
 + M&V datalogging, generate Project Completion Report (2 ENGR M/D): \$2,000
 = **TOTAL LABOR: \$8,000**

TOTAL:

SUBTOTAL (Materials & Labor): \$65,500
 + **CONTINGENCY (10%): \$6,550**
 = **TOTAL: \$72,050**

**EnergySPICE Industrial-Sector
DETERMINATION OF INCENTIVE PAYMENT**

The incentive payment in the Custom-Project Program is based on actual project costs and annual verified energy savings resulting from the project. Verification is secured through a mutually agreed upon verification scheme to be submitted as part of the Project Proposal. The amount of the incentive payment shall be taken as the lesser of the *three* quantities given by the following calculation methods:

- (a) Final verified annual energy savings multiplied by the payment rate of \$0.25 per annual kWh savings.
- (b) 70% of the final verified (incremental) project costs.
- (c) Original estimated incentive amount.

The *ESTIMATED* column below is populated with data entered on the 'Input_Form' tab of the Project Proposal. The *ACTUAL* column is to be completed after energy savings have been verified. The incentive payment figure at the bottom of the *ACTUAL* column shall be the actual incentive payment paid to the customer.

1. Project Title: *ABC Industrial Company*
Air Compressor Upgrade for #2 Line

(Cowlitz PUD Project No. ECA-PR4.1200-XX-XXX)

	<u>ESTIMATED</u>	<u>ACTUAL</u>
2. Project Cost:	<u>\$72,050</u>	<input type="text"/>
3. Annual Site Energy Savings:	<u>500,000 kWh</u>	<input type="text"/>
4. Annual Busbar Energy Savings: (Line 3 x 1.090600 *) <i>* NOTE: <u>Actual</u> 'Busbar Factor' multiplier can vary (by less than 0.5%) depending on BPA-defined project category</i>	<u>545,300 kWh</u>	-
5. Incentive Payment Caps:		
5a. Cap #1 (\$0.25 x Busbar Savings)	<u>\$136,325.00</u>	-
5b. Cap#2 (70% x Project Cost)	<u>\$50,435.00</u>	-
5c. Cap#3 (Original 'Estimated' Incentive Amount)	<u>N/A</u>	<u>\$50,435.00</u>
6. Resulting Incentive Payment (lesser of lines 5a, 5b, and 5c above)	<input style="border: 2px solid black;" type="text" value="50,435.00"/>	<input style="border: 2px solid black;" type="text"/>