5.1.1. Spartan Controls Ltd. – REMVue Air-Fuel Ratio (AFR)  

**Description**
REMVue® Air-Fuel Ratio Control systems allow engines to operate at different air-fuel ratios than the original engine design, allowing them to run on less fuel gas. The REMVue®-AFR is a patented air-fuel ratio control system, providing rich-to-lean conversion and engine control optimization. It is the only patented rich-to-lean conversion system available for rich-burn engines. The system can be configured to operate as a stand-alone control system, or it can be integrated with other hardware or software systems. The REMVue®-AFR can be applied to a wide variety of rich burn or lean burn engines, resulting in an average of 15% fuel savings, improved runtime, and reduced NOx emissions (MSAPR compliance levels).

**Technology Group**
Engines and Compressors – Facilities Design and Equipment

**Site Applicability**
Oil and gas facilities; sweet and sour service, any rich-burn or lean-burn natural gas engine

**Emissions Reduction and Energy Efficiency**
Up to 2,000 tons CO₂e annually, depending on engine and tuning of the system.

**Economic Analysis**

- **Capital Cost:** Capital costs range from $40,000 to $60,000. However, these costs vary based on location, type of engine, and number of units purchased.
- **Installation Cost:** Installation costs range from $40,000 to $60,000 depending on the size of engine/compressor and the addition of optional features.
- **Operating Cost:** Improved engine optimization generally reduces operating costs by an average of 10%.
- **Maintenance Cost:** The REMVue®-AFR results in no additional maintenance costs as it does not require any special skills beyond existing operations.
- **Carbon Offset Credits:** The REMVue®-AFR is eligible for carbon-offsets as per the Alberta Offset System Quantification Protocol for Engine Fuel Management and Vent Gas Capture Projects.
Payback, Return on Investment and Marginal Abatement Cost:

Based on fuel savings, reliability improvements, and carbon offsets, payback can be expected within 3-16 months. This payback does not take into account the value of reduced equipment wear, such as cylinder heads, nor increased production.

Reliability

Expected Lifetime:

The equipment is expected to last the lifetime of the facility.

Maintenance:

No special maintenance considerations apply.

Safety

No additional safety considerations apply.

Regulatory

- CSA, Class1 Div 2 hazardous approval
- Recognized for NOx emissions compliance by AER and Environment and Climate Change Canada
- (MSAPR)
- Recognized as compliant solution for the Alberta Engine Fuel Management and Vent Gas Capture Protocol and the BC META protocol

Vendor Information

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