OPTIMIZED CONFIGURATION PAYS BACK INVESTMENT IN LESS THAN 2 MONTHS.

What if we told you that 98% air and 2% fuel is the input of your most valuable assets, your turbines? Now what if we told you that 100% of that air contains pollutants that can damage your turbines if they're not properly filtered?

The air in every production site is different due to weather patterns, the dust concentration level, temperature, pollutant sources, etc. Filtration systems should therefore be optimized to local site conditions, however, most systems are standardized, or in other words, optimized for CAPEX reduction over OPEX optimization*.

Consider the impact of filtration in terms of power output, availability, and ultimately, total value added to your operation when it is adapted to your location conditions and operational regime:

- Increased power output from reduced fouling
- Increased power output from lower and more stable pressure drop
- Increased availability from reduced offline water washing downtime

In our industry, it's important to make smart purchases that will last long and have a positive impact to your bottom line. The following table shows examples of companies that yielded a return on investment in less than 2 months by investing in filtration tailored specifically for their site (identities undisclosed due to privacy):

	Case 1	Case 2
Engine	4 GE Frame 9 FA engines of 255 MW per unit	10 GE LM 6000 engines of 42 MW per unit
Environment	Rural: seasonal agriculture, insects, birds, pollen, leaves, mist	Industrial: hydrocarbons, nearby industrial process debris, salt, cement dust, pollen
Problem	Decrease in compressor efficiency over time due to degradation (fouling) Required regular "online" compressor washes and "offline" washes twice a year	Decrease in compressor efficiency over time due to degradation (fouling) Required regular "online" compressor washes and "offline" washes twice a year
Solution	Filter class upgrade from a two stage (G4, F8) to a three stage (G4, F8, E10) Total cost: $892,000 USD for 4 engines	Filter class upgrade from a two stage (G4, F9) to a two stage (F8, E10) Total cost: $270,000 USD for 10 engines
Total Savings	$6.8 mUSD/year total for 4 engines 1.5-month payback period Advantages: Increased compressor efficiency by 2%: extra 8MW/h and elemination of "offline" washing, also running for 18 months without "offline" washing.	$1.9 mUSD/year total for 10 engines 1.7-month payback period Advantages: Cleaner engine and eleminatin of "offline" compressor washing for 5.5 months.

In short, upgrading to the right filtration for your site is not only cheap insurance to make sure your engine doesn't corrode, but it's also a big benefit to your bottom line. Fall outage is coming up and if you think there is a savings opportunity for your site, contact us to receive a free life cycle cost analysis.

CAPEX and OPEX Components:

- *Capital Investment: [CAPEX]*
  - *Cost of filter housing*
- *Direct Filter costs: [OPEX]*
  - *Cost of replacement filter elements*
  - *Transportation to site, installation and disposal*
  - *Downtime for filter replacement*
- *Indirect Filter costs: [OPEX]*
  - *Output lost due to pressure drop*
- *Fouling and thermal corrosion cost: [OPEX]*
  - *Reduced power output*
  - *Increased heat rate/fuel consumption*
  - *Water wash consumable cost and downtime*

For more information, contact your local representative or reach us at:
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