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Profiting from
Emission Reduction
in Process Industries
*An Oil and Gas
Example*



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EXECUTIVE SUMMARY

A common misconception in the process industries is that greenhouse gas emission reduction programs are inherently unprofitable. Recent experience in the oil and gas industry, however, proves otherwise. One company, for example, identified a 43 percent reduction in emissions with a net present value of several billion U.S. dollars using a five-step process that makes finding reductions in emissions both practical and profitable.

PROFIT IMPROVEMENT FOR PROCESS INDUSTRIES

Many executives in the process sector believe that reducing greenhouse gas emissions also reduces profits.¹ But Booz & Company's work with numerous clients around the globe has consistently demonstrated that well-designed emission reduction programs can be profitable for both large and small companies. In addition, reducing greenhouse gas emissions has valuable secondary benefits, including a better public image for companies and improved

local air quality for the communities in which they operate.

Surprisingly, the companies at the forefront of these efforts are not just multinational corporations. In many instances, national companies and smaller producers are taking the lead in finding big savings. As with all profit improvement initiatives, however, care in planning and implementation is the key to success. For example, looking across upstream, midstream, downstream, and petrochemical operations in the oil and gas sector, it is possible to find significant (and profitable) emission savings in five major areas:

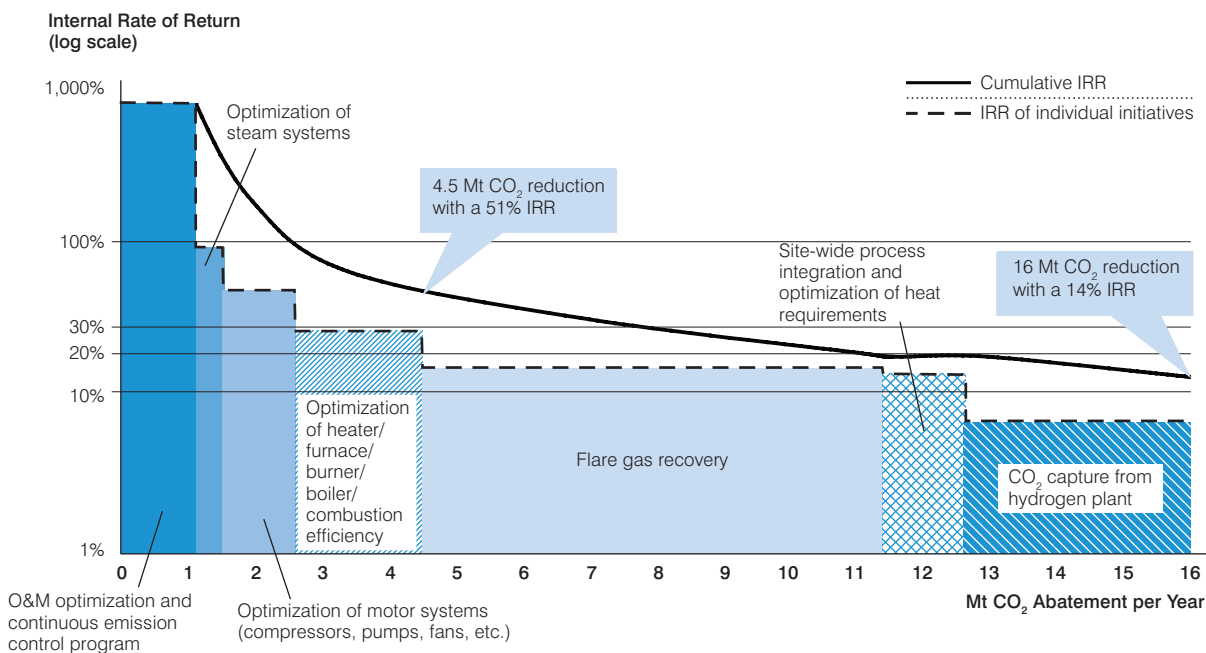
- Operations and maintenance improvement
- Equipment optimization for energy efficiency (including heaters, boilers, motors, and lighting)

- Site-wide process optimization, including cascading of heat
- Flaring and venting reduction
- Capture of carbon dioxide for feedstock and/or enhanced oil recovery

Furthermore, implementing profitable emission reduction measures does not require scale; the measures identified above are just as effective for small companies as for bigger producers.

Companies can realize returns from a variety of initiatives (see Exhibit 1). The cumulative curve shows how such initiatives can be combined to create substantial emission reductions at attractive rates of return.

Exhibit 1
Returns from Abatement Initiatives: An Example



Source: Booz & Company analysis

FINDING EMISSIONS-RELATED PROFITS

Booz & Company has developed a five-step process for identifying and rolling out profitable greenhouse gas emission savings (see Exhibit 3). This process starts with understanding of the organization’s current footprint, including establishing the baseline, predicting future emissions, and, most important, identifying the biggest sources of emissions. With input from in-house engineers, opportunities for

reductions are then identified and prioritized; detailed design and implementation planning follow.

Our experience with profitable emission reduction projects has identified six key enablers that maximize the chances of success.

1. Implement a robust and clear operating model and governance structure.
2. Build required capabilities through recruiting and training.
3. Engage internal and external stakeholders through a comprehensive communication plan.

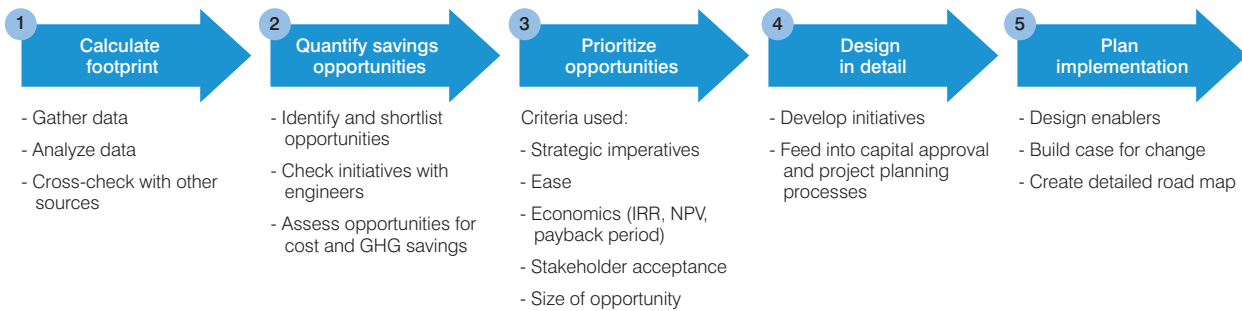
4. Recognize all economic benefits, including leveraging international carbon finance—this may involve working with the Designated National Authority to capture Clean Development Mechanism funding.

5. Seek continuous improvements to greenhouse gas emissions measurement and reporting using robust reporting systems.

6. Track performance and align incentives to drive behavior change.

The magnitude and value of hidden emission reduction opportunities is surprising. How many millions of dollars are you wasting every day?

Exhibit 3
Process for Capturing Profitable Greenhouse Gas Emission Reductions



Source: Booz & Company analysis

Endnotes

¹ The six greenhouse gases (GHGs) covered by the Kyoto Protocol are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The first three are the most relevant to the oil and gas sector.

KEY HIGHLIGHTS

- Well-designed greenhouse emission reduction programs can be profitable for both large and small process companies.
- Billions of dollars of additional value has been uncovered for individual clients through programs targeting substantial emission reductions.
- The intangible benefits of reducing greenhouse gas emissions include improved performance in health, safety, and the environment; enhanced public image; better relations with regulators; and reduced air pollution.
- Booz & Company has developed a five-step process for identifying and rolling out profitable greenhouse gas emission savings.

About the Authors

Nick Pennell is a partner with Booz & Company based in London. He coordinates the firm's low carbon and sustainability activities globally and serves a wide range of industries on their energy and emissions management and sustainability issues, with a focus on oil and gas and chemicals.

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