

OCTOBER 30, 2024

Making the Case for Energy Management Projects – Webinar Two – Building the Business Case

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Two webinars – two aspect of making the case

- Webinar one: Financial Analysis
 - Treating energy efficiency as an investment opportunity
 - Quantifying the financial value
- Webinar two: Building the Business Case
 - Understanding the decision-making process
 - The One Page Proposal

Workshop goal – two purposes – one path

Overall goal

To provide you with techniques, tools and hands-on experience with building the business case for an energy efficiency investment

External
selling to your prospect

To a customer

Internal
securing buy-in

From a supporting staff and
decision maker



A quick review of webinar one

Energy management benefits

Direct and indirect energy savings

Increase comfort, quality, productivity & safety

Environmental impact reduction

Improved reliability & reduced maintenance

Business cases that get approved

Properly quantify the energy, cost and carbon benefit

RETScreen Expert - 14. Kitchen Controlled Ventilation Answer.rctx

Subscriber: Tds Dixon Inc.

Individual measure - Ventilation

	Heating	Cooling	Electricity	Incremental initial costs	Fuel cost savings	Incremental O&M savings	Simple payback yr	Include measure?
Heating								
Furnace	0			0	0	0		<input checked="" type="checkbox"/>
Cooling								
AC		0		0		0		<input checked="" type="checkbox"/>
Ventilation								
Ventilation		229,436		8,000	5,508	0	1.5	<input checked="" type="checkbox"/>
Electrical equipment								
Exhaust Fan			21,239	0	2,973	0	0.0	<input checked="" type="checkbox"/>
Total	229,436	0	21,239	8,000	8,482	0	0.9	



Photo: https://en.wikipedia.org/wiki/Heating,_ventilation,_and_air_conditioning

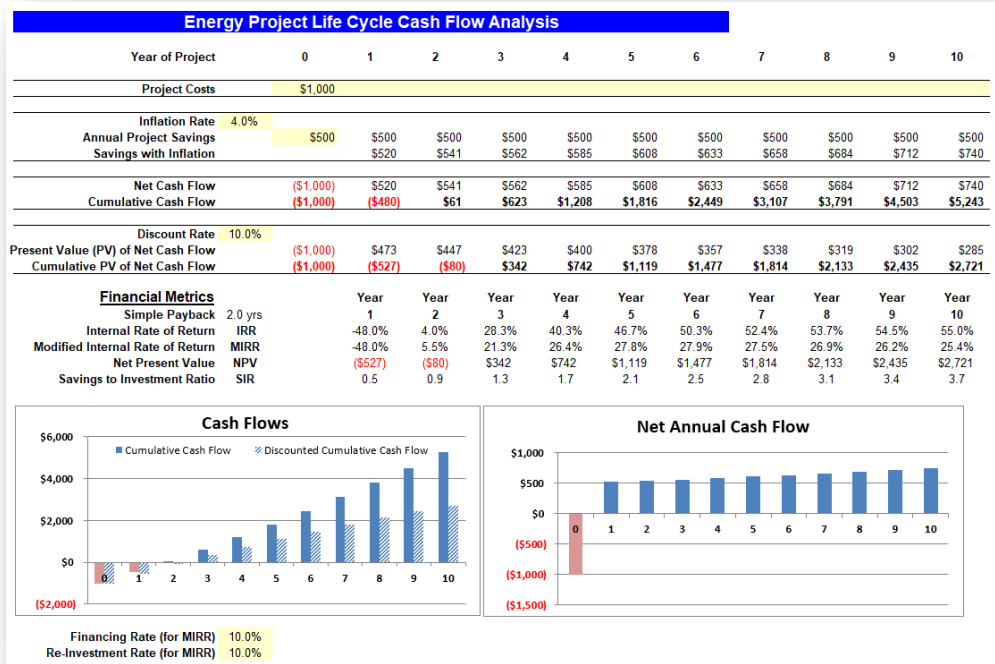
Ventilation - Method 2

Description	Base case				Proposed case			
	System selection	Quantity	Schedule	Heat recovery efficiency	System selection	Quantity	Schedule	Heat recovery efficiency
Heating	Furnace	1	24/7	100,000	Heating	1	12 hours per d	100,000
Heating	Furnace	1	24/7	0	Heating	1	6 hours per da	2,500
Heating	Furnace	1	24/7	0	Heating	1	6 hours per da	0
Total								

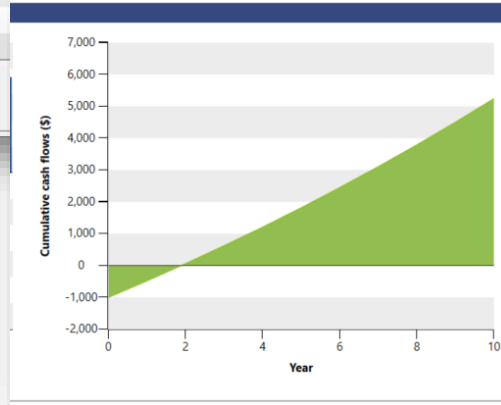
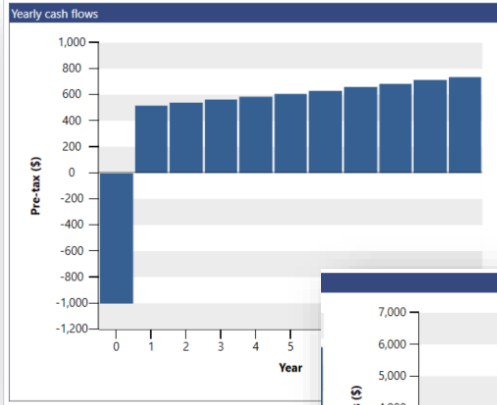
	Base case	Proposed case	Energy saved
Incremental initial costs - other	\$	8,000	
Incremental initial costs - total	\$	8,000	
Incremental O&M savings	\$		
Heating system	Furnace	Furnace	
Heating	kWh	448,299	251,043
			105,256
			43.8%

www.retscren.net

The whole picture



Level two financial analysis



File Location Facility Energy Cost Emission Finance Risk Data Analytics Report

Level 1 Level 2 Dashboard... Show graph Show notes Export to file - Copy - Level 1->2

Step 1 - Analysis level Options

RETScreen - Financial Analysis

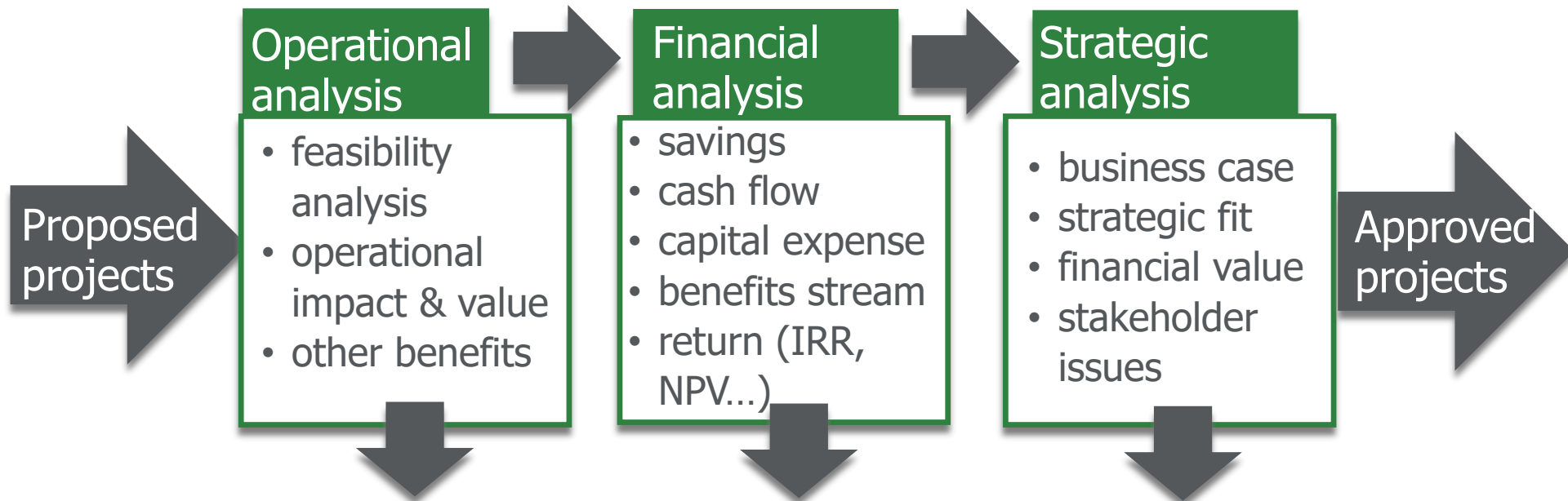
Subscriber: TdS Dixon Inc - Professional

Financial parameters		Costs Savings Revenue		Yearly cash flows		
General		Initial costs		Year	Pre-tax	Cumulative
Fuel cost escalation rate	4%	User-defined	100% \$ 1,000	#	\$	\$
Inflation rate	% 4%	Total initial costs	100% \$ 1,000	0	-1,000	-1,000
Discount rate	% 10%	Yearly cash flows - Year 1		1	520	-480
Reinvestment rate	% 10%	Annual costs and debt payments		2	541	60.80
Project life	yr 10	Debt payments	\$ 0	3	562	623
Finance		Annual savings and revenue		4	585	1,208
Incentives and grants	\$	User-defined	\$ 500	5	608	1,816
Debt ratio	% 0%	GHG reduction revenue	\$ 0	6	633	2,449
Income tax analysis		Other revenue (cost)	\$ 0	7	658	3,107
		Total annual costs	\$ 0	8	684	3,791
		Annual savings and revenue		9	712	4,503
		User-defined	\$ 500	10	740	5,243
		GHG reduction revenue	\$ 0			
		Other revenue (cost)	\$ 0			
		Total annual savings and revenue	\$ 500			
		Net yearly cash flow - Year 1	\$ 500			
Annual revenue		Financial viability				
GHG reduction revenue		Pre-tax IRR - equity	% 55%			
Gross GHG reduction	tCO ₂ /yr 0	Pre-tax MIRR - equity	% 25.5%			
Gross GHG reduction - 10 yrs	tCO ₂ 0	Pre-tax IRR - assets	% 55%			
GHG reduction revenue	\$ 0	Pre-tax MIRR - assets	% 25.5%			
Other revenue (cost)		Simple payback	yr 2			
		Equity payback	yr 1.9			
		Net Present Value (NPV)	\$ 2,721			
		Annual life cycle savings	\$/yr 443			
		Benefit-Cost (B-C) ratio	3.7			
		Debt service coverage	No debt			
		GHG reduction cost	\$/tCO ₂ No reduction			

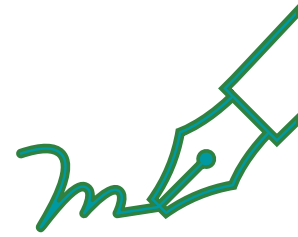


Understanding the decision making dynamics

Business cases that get approved...address the decision-making process



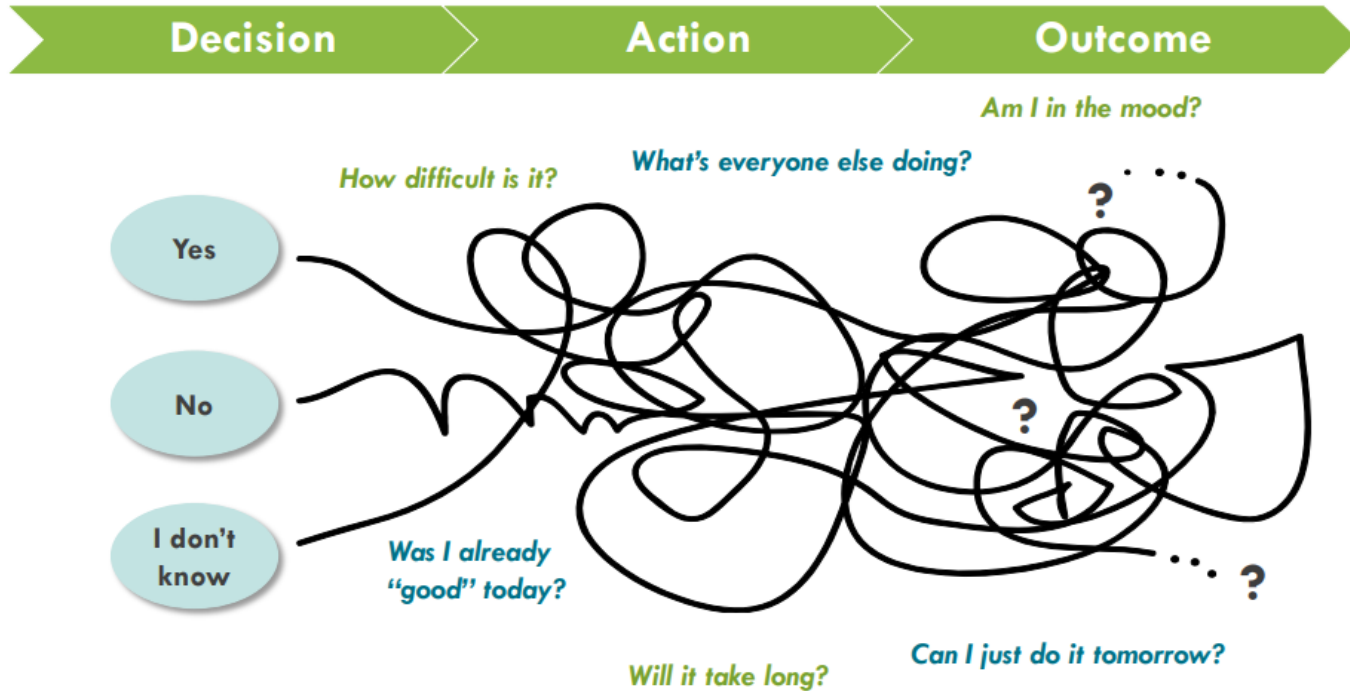
Decision makers and criteria



Speaking the language of decision makers

Decision points	Who	What are the questions decision makers need answered to determine value?
operational		
financial		
strategic		

A behavioural model of decision making



Awareness versus behaviour change



Awareness
Attitude

Perception
Beliefs

Behaviour
change

The approach incorporates strategies to address benefits and barriers



Benefits

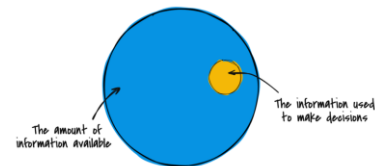
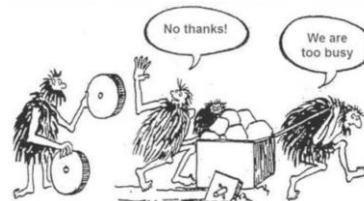


Barriers



Behaviour change

Key behavioural barriers



Present bias

People prioritize immediate and short-term rewards over long-term benefits - contributing to procrastination and underinvestment.

Loss aversion

In general, people will exert more effort to avoid a loss than achieve an equivalent gain.

Status quo bias

All else being equal, people have a strong preference for the status quo.

Availability bias

People will often focus on the information that comes to mind most easily (i.e., the most "available") - not the information that is most important.

Energy efficiency investments often have upfront costs with long-term payoffs. **How can we make those payoffs feel more immediate?**

Image source : [Nir and Far](#)

We generally think people will equally weigh costs and benefits. **How can we highlight the "losses" that efficiency investments avoid?**

Image source : [Why Customers Buy](#)

Change is always an uphill battle. **How can we make energy efficiency investments the "default option" or at least the path of least resistance?**

Image source : [The Leadership Sphere](#)

The first thing that decision-makers think about might not be the net benefit of the investment over time. **How can we make the most relevant information the most "available"?**

Key behavioural barriers (con't)

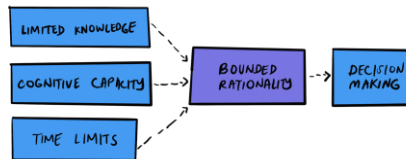


Confirmation bias

People prioritize information that is consistent with their existing beliefs. They also interpret new information in a way that aligns with those beliefs.

If decision-makers have negative beliefs about efficiency investments, they will review business cases in that light. **How can we avoid misinterpretations caused by confirmation bias?**

Image source: [Farnam Street Media](#)



Bounded rationality

People do not have infinite cognitive resources to weigh the pros and cons and make “optimal” decisions all the time.

Decision makers might not have the “bandwidth” to rigorously evaluate investment decisions. **How can we make it easier - less cognitively demanding - to make good decisions?**

Image source: [The Decision Lab](#)



Social norms

People are deeply influenced by how others behave and by how they expect us to act.

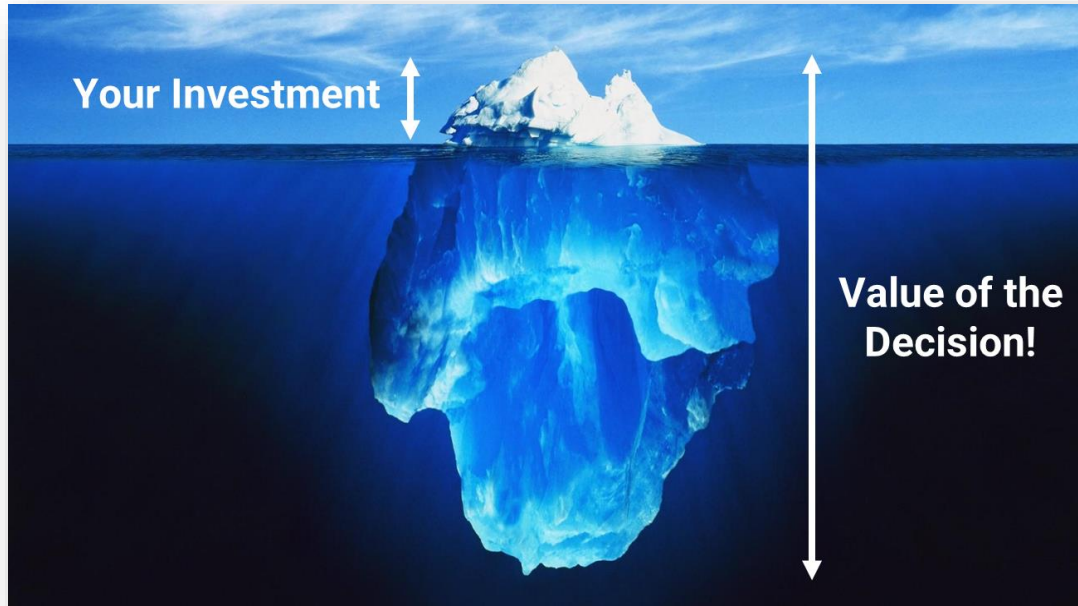
Rather than thinking of the pros and cons of an investment, decision-makers may focus on what their peers are doing. **How can we highlight positive social norms?**

Image source: [Behavioural Scientist](#)



Focus on benefits!

Business cases that get approved... show the full value of the decision



Energy management benefits

Direct and indirect energy savings

Increase comfort, quality, productivity & safety

Environmental impact reduction

Improved reliability & reduced maintenance

Business cases that get approved...consider the bottom line

Reducing the average energy spend by \$1,000, in a business with a 2% margin would have produced a similar economic result as having sold another \$50,000 of product.

$\frac{\$1 \text{ Energy Savings}}{\text{Net Profit Margin}} \longleftrightarrow \sim \$ \text{ Revenue}$

Sell 15,000 bushels of peaches.
Or switch to **LED lighting**.
Same results, your choice.



- \$15,000 in annual energy savings*
- Cash incentives from Duke Energy for installation
- Longer shelf life for produce, fish and meat
- Life span: 5-plus years
- Dimmable and controllable

*Based on average street size and electric rates.

Asset value in commercial real estate

Assuming a 10% capitalization rate, every \$1.00 savings in energy expense (or \$1,00 increase in NOI) can translate into an increase of \$10.00 in asset value.

$$\sim \frac{\text{Energy \$ Savings}}{\text{Cap Rate}}$$



Re-frame the situation



- You will purchase this variable speed drive project in one year whether you commit to the project or not.
 - 1-year simple payback
- Pre-pay part of your electricity bill for the next two years and get a free lighting retrofit.
 - 2-year simple payback
- Eliminate a pump seal replacement next year and get \$2,500 extra in your expense budget
 - \$2,500 saved plus pump rebuild avoided!



Making the pitch – the One-Page Proposal

LET'S CLEAR THE AIR

Addressing ventilation fume control needs at University of YourTown

TARGET: Modify laboratory ventilation fan system to meet peak fume-evacuation demands

- Improve working conditions for staff and students
- Extend the useful life of fan motor
- Defer capital investment
- Reduce energy expenses by \$31,000 annually
- Attract an up-front incentive equal to the first year of savings.

The University of YourTown is globally recognized as a research powerhouse and leader in research-intensive education.

The limitations of the fume hood exhaust system in the Science Building threatens the University's commitment to providing a healthy and safe workplace. The current fan system does not meet peak fume-evacuation requirements during the day, leading to a build-up of harmful fumes. Researchers and support staff in the department have been asking for transfers out at a higher rate than other buildings.

Implementing a variable speed drive technology on the ventilation will improve the exhaust performance while reducing energy waste during non-peak times. The system can be upgraded with minimal disruption to research productivity over a weekend.

We would be happy to speak with staff to discuss how this system will address their concerns.

FINANCIAL:

Project first cost is estimated at \$114,000 after a SaveOnEnergy incentive of \$31,000. A 10 year analysis yields a net present value of \$130,373 with a savings-to-investment ratio over 2.

Simple Payback	3.2 years	Net Present Value	\$130,373
Return on Investment	31%	Savings to Investment Ratio	2.1
Internal Rate of Return	31%	Modified Internal Rate of Return	19%

STATUS:

A pre-qualified \$31,000 Incentive to implement this project is available from the local electricity distributor.

ACTION:

U of Y to authorize purchase agreement with Vendor to upgrade the lab ventilation system to variable speed drive technology to improve the laboratory fume exhaust.

THE ONE-PAGE PROPOSAL

HOW TO GET YOUR BUSINESS PITCH ONTO ONE PERSUASIVE PAGE

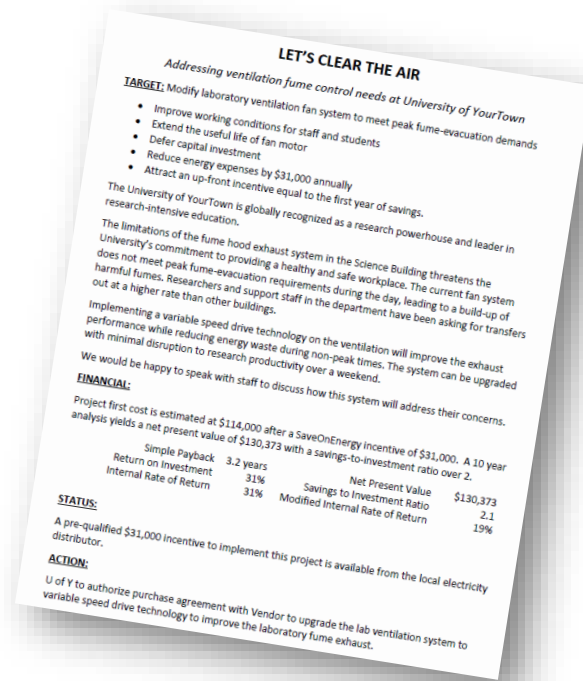
Discover the secret to:

- organizing your ideas
- finding just the right words
- standing out among the competition
- receiving a rapid and POSITIVE response

PATRICK G. RILEY

What is a One-Page Proposal?

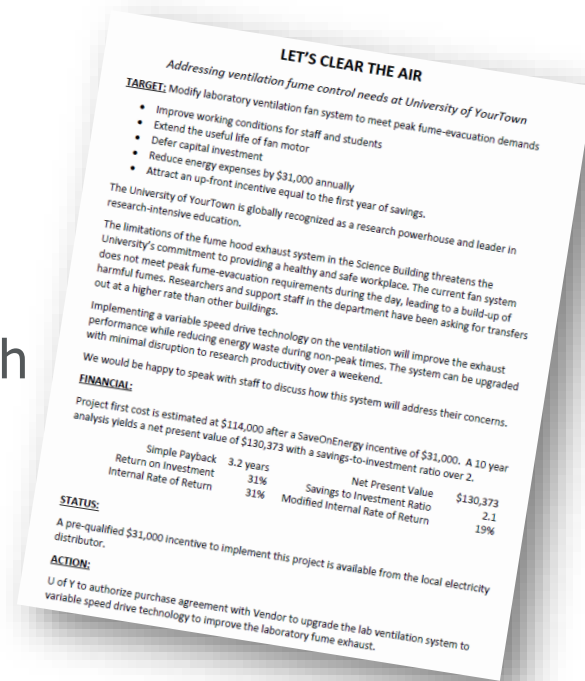
- It is a document that:
 - concisely explains all the factors, reasons for, and circumstances concerning the proposed action
 - proposes a specific action to be taken
 - uses the persuasive process to construct a strong case for saying “yes”
- Accomplishes all of the above in a single, powerful page



The strategic steps of your One-Page Proposal

Follows a logical process of thought:

- Title & subtitle - what's to come
- Target & secondary targets- goals
- Rationale – background, **WHY**, the pitch
- Financial - \$\$\$
- Status – what's happening
- Action – what do you want?



One-Page Proposal (Titles)

Titles | Target | Rationale | Financial | Status | Action

TITLE and subtitle

- TITLE (ALL IN UPPER CASE) labels and defines the entire proposal
 - TITLE condenses the details into a single, captivating phrase – if nothing else gets read, this will
- Subtitle (in upper and lower case below the main title) gives more detail, builds interest, adds ‘punch’
 - subtitle provides a second chance to “hook” your reader

LET’S CLEAR THE AIR

Addressing ventilation fume control needs at University of YourTown

One-Page Proposal (Target)

Titles | Target | Rationale | Financial | Status | Action

Target

- This is the main goal of your proposal
- Could also be called the “intention”
- Answers your reader’s question, “What exactly will happen if I accept this proposal and it goes forward?”

TARGET: Modify laboratory ventilation fan system to meet peak fume-evacuation demands

Adapted from <http://www.slideshare.net/uvic/the-one-page-proposal-presentation>

One-Page Proposal (Target, con't)

Titles | Target | Rationale | Financial | Status | Action

Secondary targets (not titled)

- Almost all proposals have more than one target/objective
- Alone, each may not be able to justify the proposal, but together they add weight and purpose to the main objective
- Secondary targets highlight additional perceived benefits In your reader's mind your idea goes from "this is an interesting idea" to "this a great idea"
 - Improve working conditions for staff and students
 - Extend the useful life of fan motor
 - Defer capital investment
 - Reduce energy expenses by \$31,000 annually
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Adapted from <http://www.slideshare.net/uvic/the-one-page-proposal-presentation>

One-Page Proposal (Rationale)

Titles | Target | Rationale | Financial | Status | Action

Rationale (not titled)

- This, the longest section, is the all-important step where you “sell” your idea
- Better still, if this section is well crafted, your proposal will sell itself
- In two or three concise paragraphs, it convincingly presents all the reasons WHY your proposal should be accepted (think benefits!)
- Back up your objectives by showing you’ve done your homework – discuss needs and present key features, advantages, and benefits
- Here’s your chance to show you are prepared, and to infect the reader with your passion!

Adapted from <http://www.slideshare.net/uvic/the-one-page-proposal-presentation>

One-Page Proposal (Rationale, con't)

Titles | Target | Rationale | Financial | Status | Action

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Implementing a variable speed drive technology on the ventilation will improve the exhaust performance while reducing energy waste during non-peak times. The system can be upgraded with minimal disruption to research productivity over a weekend.

We would be happy to speak with staff to discuss how this system will address their concerns.

One-Page Proposal (Financial)

Titles | Target | Rationale | **Financial** | Status | Action

Financial

- This is where you clarify the financial commitments required and benefits that will result
- Even though the 1st reader may not be a financial investor, it is still important to explain the money issue, another reader may be financial!

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One-Page Proposal (Status)

Titles | Target | Rationale | Financial | **Status** | Action

Status

- Here's where you answer some key questions:
 - what is the current situation?
 - what has been accomplished already and/or what preparations are underway?
 - who have you talked to and are there any agreements/related deals already in place?
- This is a great chance to build credibility and momentum

A pre-qualified \$31,000 incentive to implement this project is available from the local electricity distributor.

Adapted from <http://www.slideshare.net/uvic/the-one-page-proposal-presentation>

One-Page Proposal (Action)

Titles | Target | Rationale | Financial | Status | Action

Action

- Your action statement is in response to your reader's implied question
 - "what exactly do you want me to do?"
- Remember – if you don't ask for something, it's not a proposal

ACTION:

U of Y to authorize purchase agreement with Vendor to upgrade the lab ventilation system to variable speed drive technology to improve the laboratory fume exhaust.

Adapted from <http://www.slideshare.net/uvic/the-one-page-proposal-presentation>

A complete One-Page Proposal

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The One-Page Proposal template

One Page Proposal Template

Title: <i>Headline the Story</i>
Subtitle: <i>Build on the Title</i>
Target: <i>State Your Goal</i>
Secondary Targets: <i>Clarify Your Goal</i> <ul style="list-style-type: none">••••
Rationale: <i>WHY, Who, What, Where, and How</i>
Financial: <i>Spell Out the Numbers</i>
Status: <i>Where the Deal Stands Now</i>
Action: <i>If You Don't Ask for Something, It's Not a Proposal</i>

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5 min.

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Thank you!

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