



EVALUATING MOTOR DECISIONS

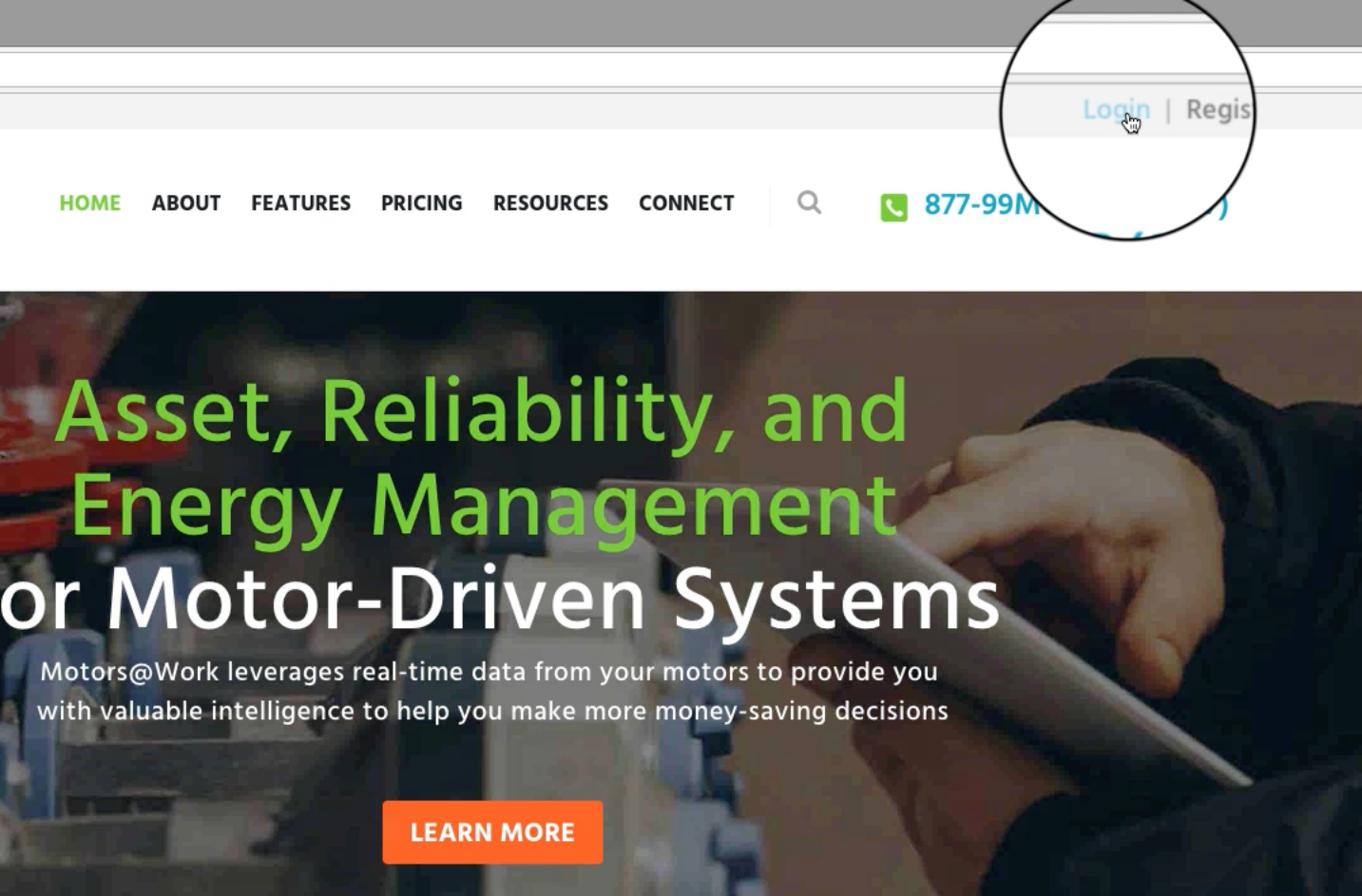
A QUICK-START GUIDE



MOTORS@WORK



LOG INTO MOTORS@WORK



1. Open your browser & go to www.motorsatwork.com
2. Select [Login](#) in the upper right corner of the website

ASSET, RELIABILITY AND ENERGY MANAGEMENT FOR MOTOR-DRIVEN SYSTEMS

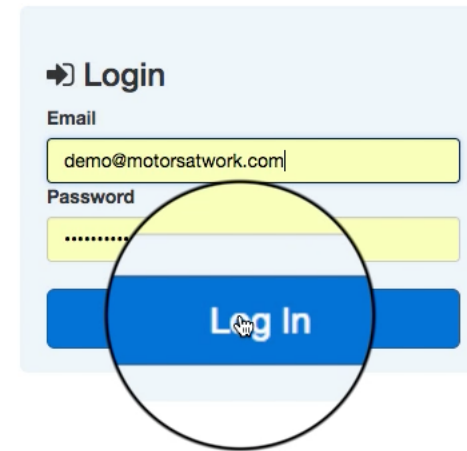


Reliability Management



Energy Management

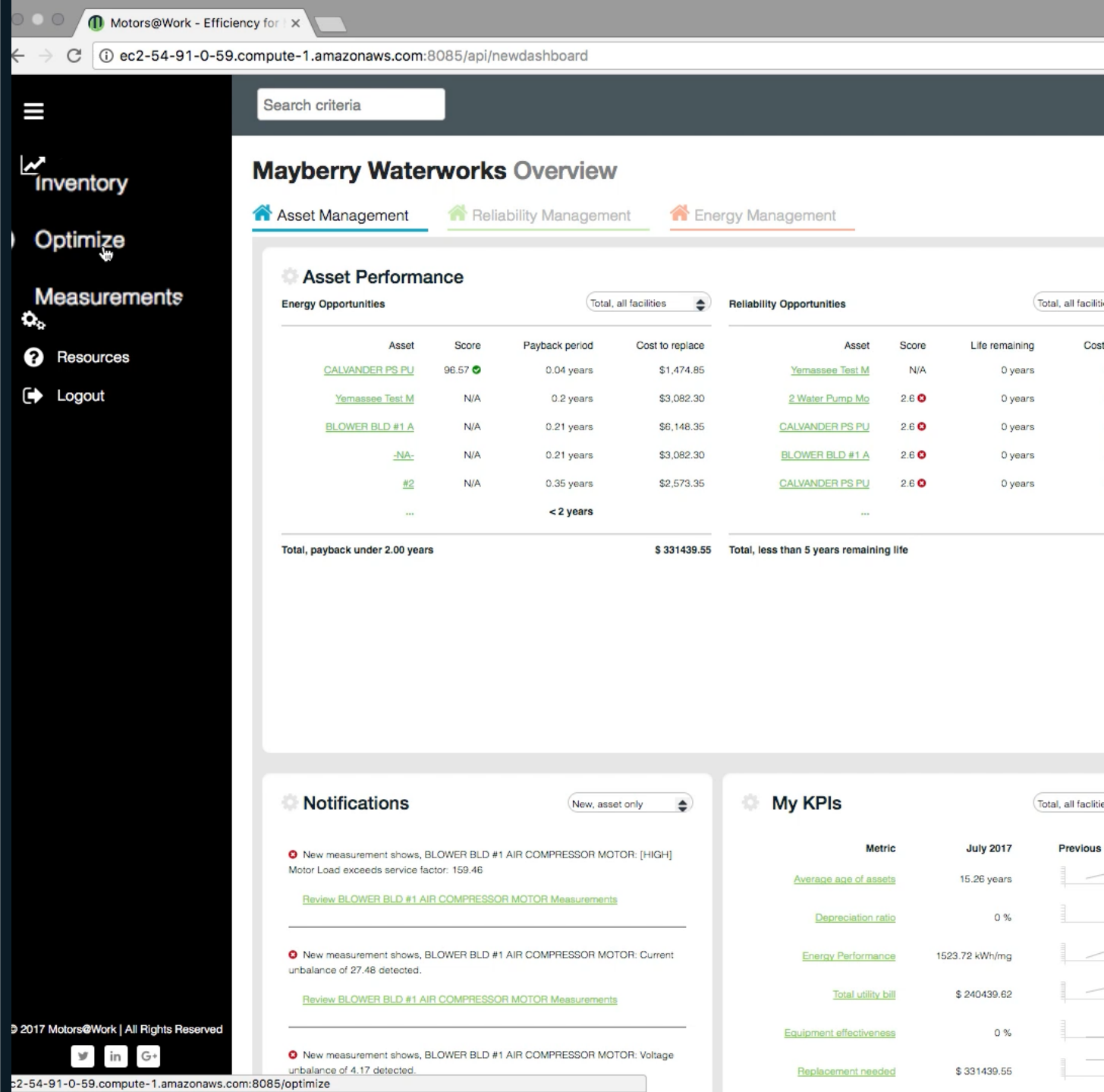
3. Enter your **Email** and **Password** in the appropriate fields
4. Click the **Log In** button

A screenshot of a web application's login interface. It features a light blue background with the heading "Login" and a right-pointing arrow. Below the heading are two input fields: "Email" containing "demo@motorsatwork.com" and "Password" containing a masked password ".....". A blue "Log In" button is positioned below the fields, with a mouse cursor hovering over it. A black circle highlights the "Log In" button.



NAVIGATE TO MOTOR EVALUATIONS

1. Click on the  [Optimize icon] in the navigation bar



The screenshot shows a web browser window with the URL `ec2-54-91-0-59.compute-1.amazonaws.com:8085/api/newdashboard`. The application is titled "Motors@Work - Efficiency for..." and displays a "Mayberry Waterworks Overview" dashboard. The navigation bar on the left includes "Inventory", "Optimize" (highlighted with a mouse cursor), "Measurements", "Resources", and "Logout".

The main content area is divided into several sections:

- Asset Performance:** Contains two tables: "Energy Opportunities" and "Reliability Opportunities".

Energy Opportunities				Reliability Opportunities			
Asset	Score	Payback period	Cost to replace	Asset	Score	Life remaining	Cost
CALVANDER PS PU	96.57 ✔	0.04 years	\$1,474.85	Yemassee Test M	N/A	0 years	
Yemassee Test M	N/A	0.2 years	\$3,082.30	2 Water Pump Mo	2.6 ●	0 years	
BLOWER BLD #1 A	N/A	0.21 years	\$6,148.35	CALVANDER PS PU	2.6 ●	0 years	
-NA-	N/A	0.21 years	\$3,082.30	BLOWER BLD #1 A	2.6 ●	0 years	
#2	N/A	0.35 years	\$2,573.35	CALVANDER PS PU	2.6 ●	0 years	
...		< 2 years		...			
Total, payback under 2.00 years			\$ 331439.55	Total, less than 5 years remaining life			
- Notifications:** Lists alerts such as "New measurement shows, BLOWER BLD #1 AIR COMPRESSOR MOTOR: [HIGH] Motor Load exceeds service factor: 159.46" with a link to "Review BLOWER BLD #1 AIR COMPRESSOR MOTOR Measurements".
- My KPIs:** Displays key performance indicators for July 2017 compared to previous periods:

Metric	July 2017	Previous
Average age of assets	15.26 years	
Depreciation ratio	0 %	
Energy Performance	1523.72 kWh/mg	
Total utility bill	\$ 240439.62	
Equipment effectiveness	0 %	
Replacement needed	\$ 331439.55	

At the bottom of the page, there is a footer with "© 2017 Motors@Work | All Rights Reserved" and social media icons for Twitter, LinkedIn, and Google+.



Explore
motor catalog



Evaluate motor
decisions



Optimize
pump processes



Rank pump
system performance



Rank pump
system energy loss



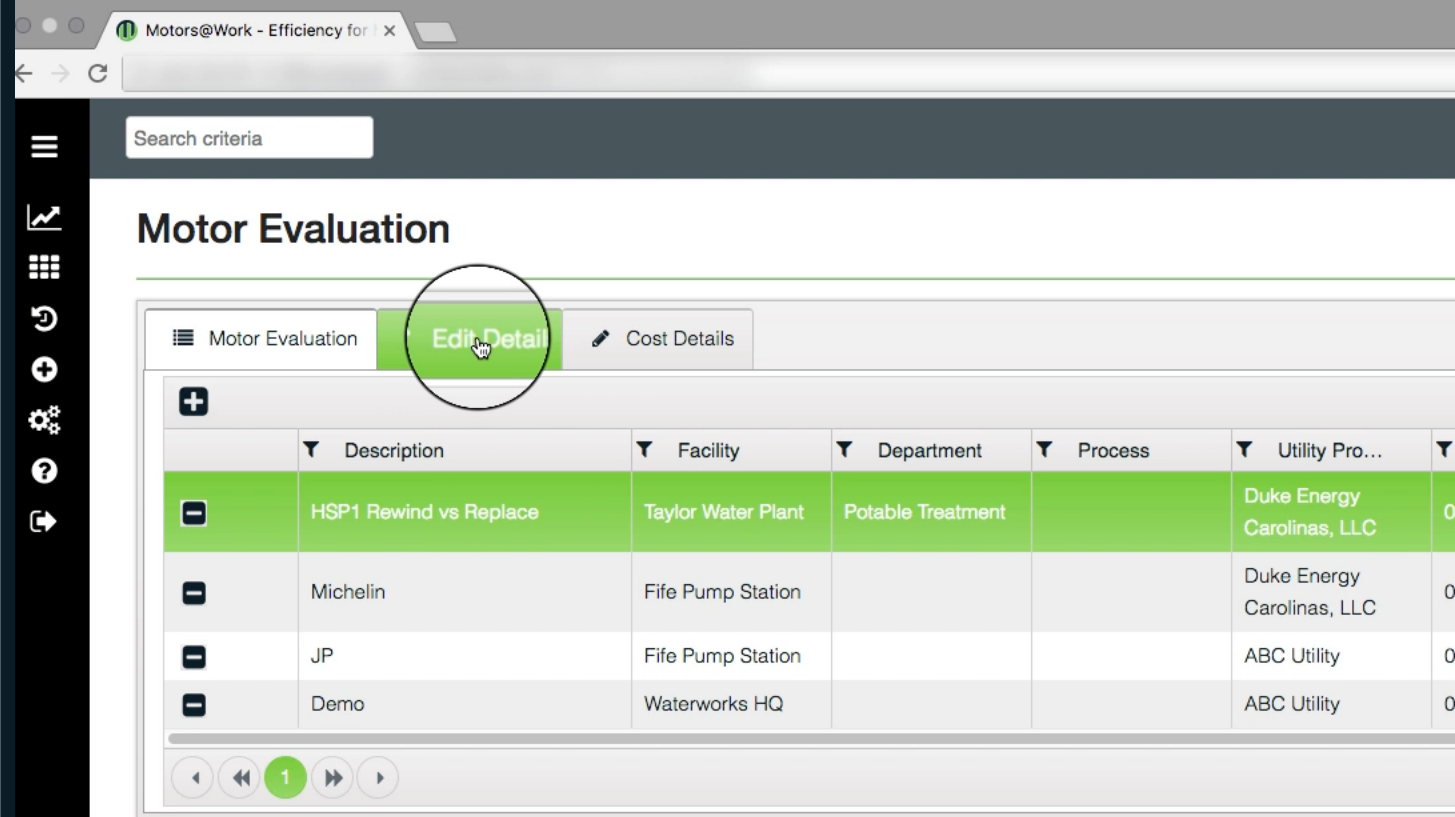
Review
motor alerts



Analyze
measurements

2. Select the **Evaluate Motor Decisions** application from the list of available tools

3. Select an existing evaluation then click the **Edit Details** tab; or, follow the instructions in the **CREATE NEW EVALUATION** to assess a new situation



Search criteria

Motor Evaluation

Motor Evaluation **Edit Detail** Cost Details

	Description	Facility	Department	Process	Utility Pro...	
+	HSP1 Rewind vs Replace	Taylor Water Plant	Potable Treatment		Duke Energy Carolinas, LLC	0
-	Michelin	Fife Pump Station			Duke Energy Carolinas, LLC	0
-	JP	Fife Pump Station			ABC Utility	0
-	Demo	Waterworks HQ			ABC Utility	0

Navigation: < << 1 >> >




CREATE NEW MOTOR EVALUATION




Motors@Work - Efficiency for

Search criteria

Motor Evaluation

Motor Evaluation Edit Details Cost Details



	Description	Facility	Department	Process	Utility Pro...
	Michelin	Fife Pump Station			Duke Energy Carolinas, LLC
	JP	Fife Pump Station			ABC Utility
	Demo	Waterworks HQ			ABC Utility

1

1. Click the  [Add icon] to create a new evaluation

TIP

Select the **New Motor** evaluation type to compare two motors from Motors@Work's catalog. Select **Replace Existing** to evaluate replacing or repairing an existing motor from your inventory.

2. Complete all required fields

- **Yearly rate change %** | Inflation or escalation rate for your utility rate (\$/kWh)
- **Yearly demand change %** | Inflation or escalation rate for your demand rate (\$/kW)
- **Yearly cost change %** | Inflation or escalation rate for all other labor & material costs

3. Click Update

Cost Details

Facility	Department	D...	Y...	Y...	Y...
Fife Pump Station		1.3	5	5	5
Fife Pump Station		18	5	5	5
Waterworks HQ		0.4	10	10	10
Taylor Water Plant	Potable Treatment	13.98	4.25	1	2.5

Edit

Description: HSP1 Rewind vs Replace *

Facility: Taylor Water Plant *

Department: Potable Treatment *

Process: select option *

Utility Provider: Duke Energy Carolina... *

Utility Rate: 0.10 *

Demand Rate: 13.98 *

Yearly Rate Change %: 4.25 *

Yearly Demand Change %: 1.00 *

Yearly Cost Change %: 2.50 *

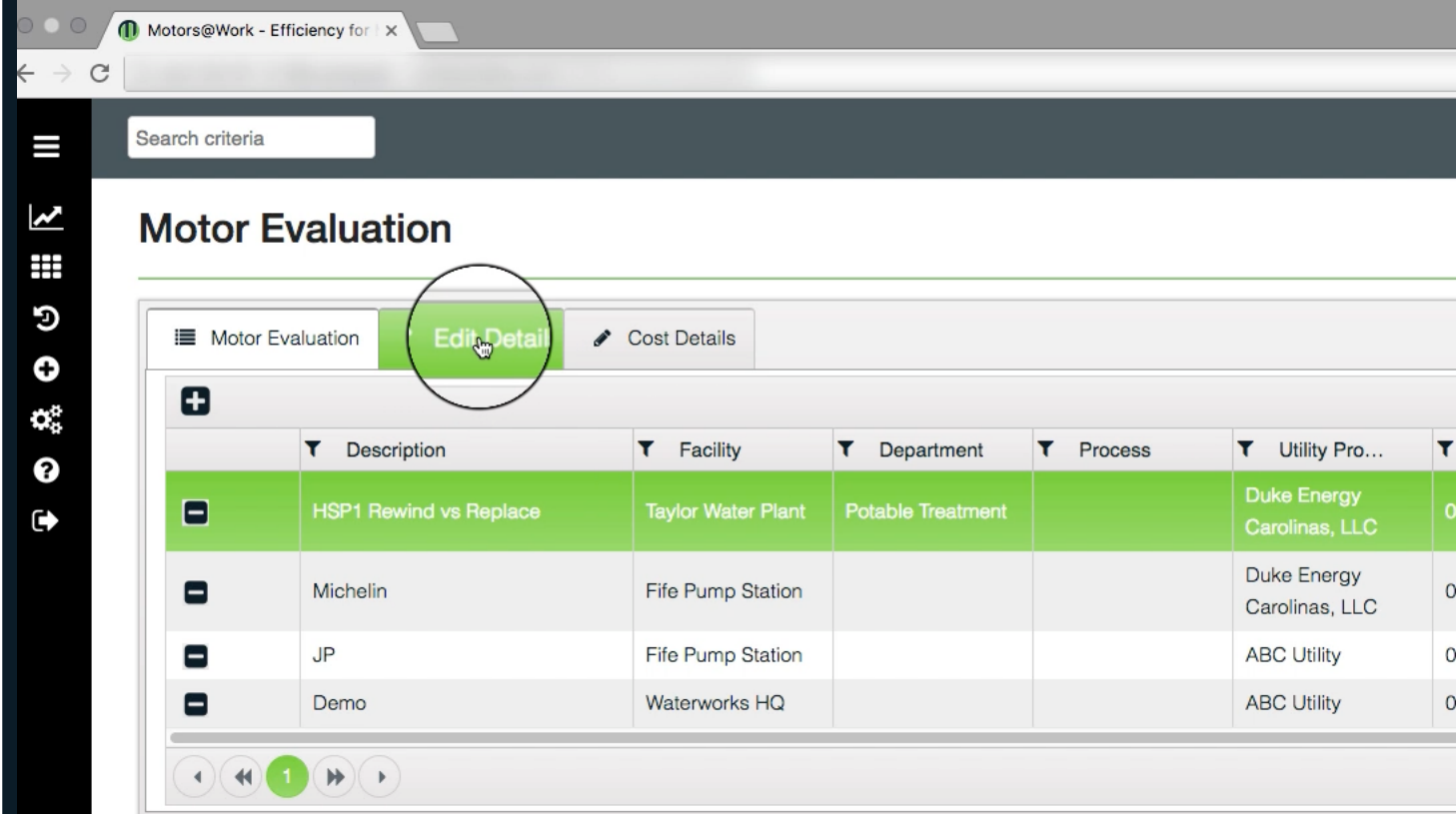
Evaluation Type: Replace Existing *

Depreciation Method: Straight Line *

Years: 10.00 *

Update Cancel

4. Select the newly created evaluation then click the **Edit Details** tab



Search criteria


Motor Evaluation

Motor Evaluation **Edit Details** Cost Details

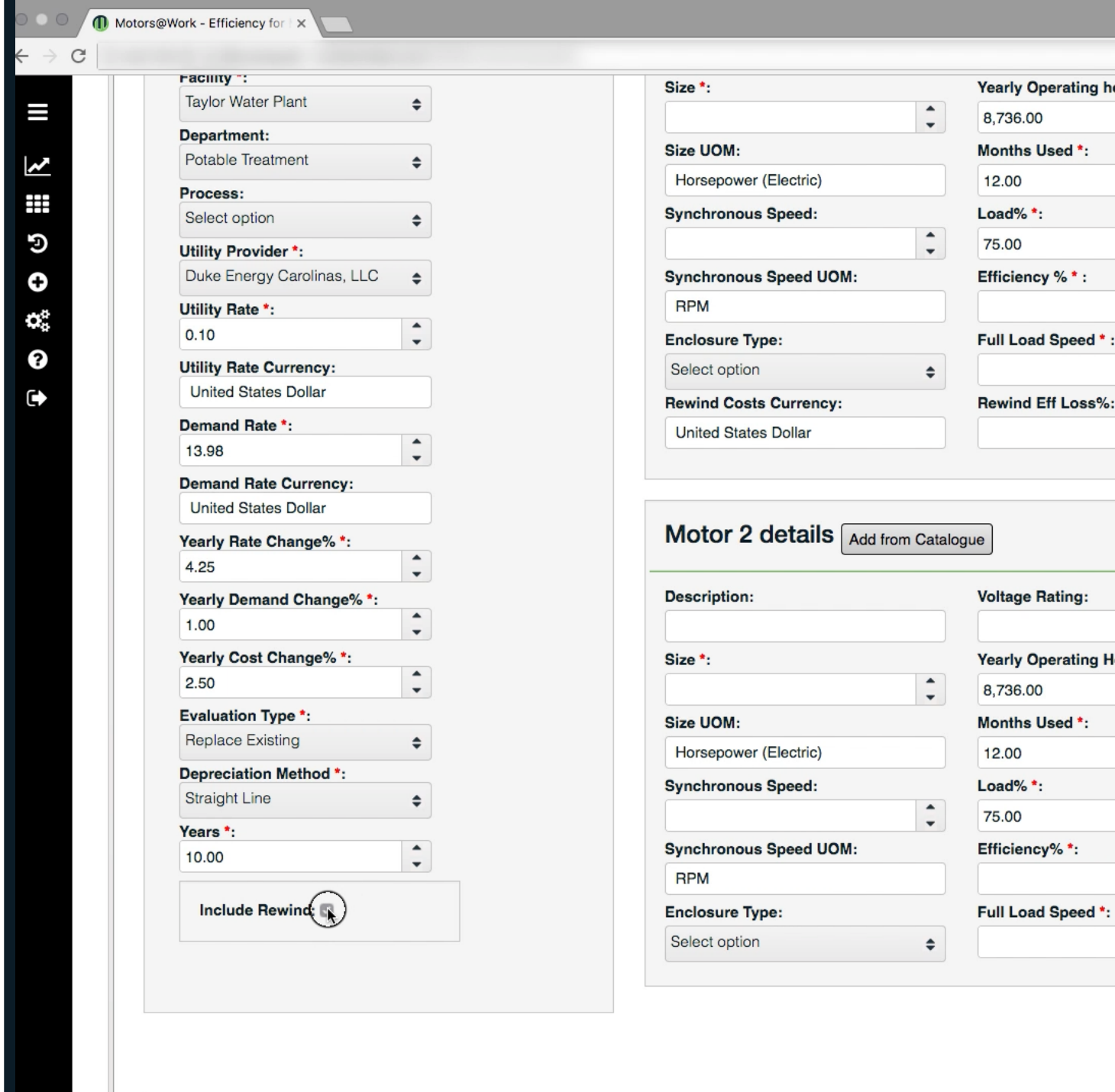
	Description	Facility	Department	Process	Utility Pro...	
+	HSP1 Rewind vs Replace	Taylor Water Plant	Potable Treatment		Duke Energy Carolinas, LLC	0
-	Michelin	Fife Pump Station			Duke Energy Carolinas, LLC	0
-	JP	Fife Pump Station			ABC Utility	0
-	Demo	Waterworks HQ			ABC Utility	0

Navigation: < << 1 >> >

TIP

Create too many new evaluations? To delete an evaluation you no longer need, just click the  [Remove icon].

5. If evaluating repairing an existing motor from your inventory, click **Include Rewind**



The screenshot displays the Motors@Work software interface for configuring a motor. The browser title is "Motors@Work - Efficiency for...". The interface is divided into several sections:

- Facility:** Taylor Water Plant
- Department:** Potable Treatment
- Process:** Select option
- Utility Provider *:** Duke Energy Carolinas, LLC
- Utility Rate *:** 0.10
- Utility Rate Currency:** United States Dollar
- Demand Rate *:** 13.98
- Demand Rate Currency:** United States Dollar
- Yearly Rate Change% *:** 4.25
- Yearly Demand Change% *:** 1.00
- Yearly Cost Change% *:** 2.50
- Evaluation Type *:** Replace Existing
- Depreciation Method *:** Straight Line
- Years *:** 10.00

At the bottom of this section is a button labeled "Include Rewind" with a mouse cursor icon over it.


On the right side, there are two columns of input fields for motor specifications:

- Size *:** [Empty field]
- Size UOM:** Horsepower (Electric)
- Synchronous Speed:** [Empty field]
- Synchronous Speed UOM:** RPM
- Enclosure Type:** Select option
- Rewind Costs Currency:** United States Dollar

Below these are summary fields:

- Yearly Operating h:** 8,736.00
- Months Used *:** 12.00
- Load% *:** 75.00
- Efficiency% *:** [Empty field]
- Full Load Speed *:** [Empty field]
- Rewind Eff Loss%:** [Empty field]

Below this is a section titled "Motor 2 details" with an "Add from Catalogue" button. It contains the same set of input fields and summary fields as the section above.

 Cost Details

Motor 1 details [Add from My Motors](#)

Description: <input type="text"/>	Voltage Rating: <input type="text"/>	Dealer Discount % *: 35.00
Size *: <input type="text"/>	Yearly Operating hours *: 8,736.00	List Price: <input type="text"/>
Size UOM: Horsepower (Electric)	Months Used *: 12.00	List Price Currency: United States Dollar
Synchronous Speed: <input type="text"/>	Load% *: 75.00	Installation Costs: <input type="text"/>
Synchronous Speed UOM: RPM	Efficiency % *: <input type="text"/>	Installation Costs Currency: United States Dollar
Enclosure Type: Select option	Full Load Speed *: <input type="text"/>	Rewind Costs: <input type="text"/>
Rewind Costs Currency: United States Dollar	Rewind Eff Loss%: <input type="text"/>	Residual Value: 0.00

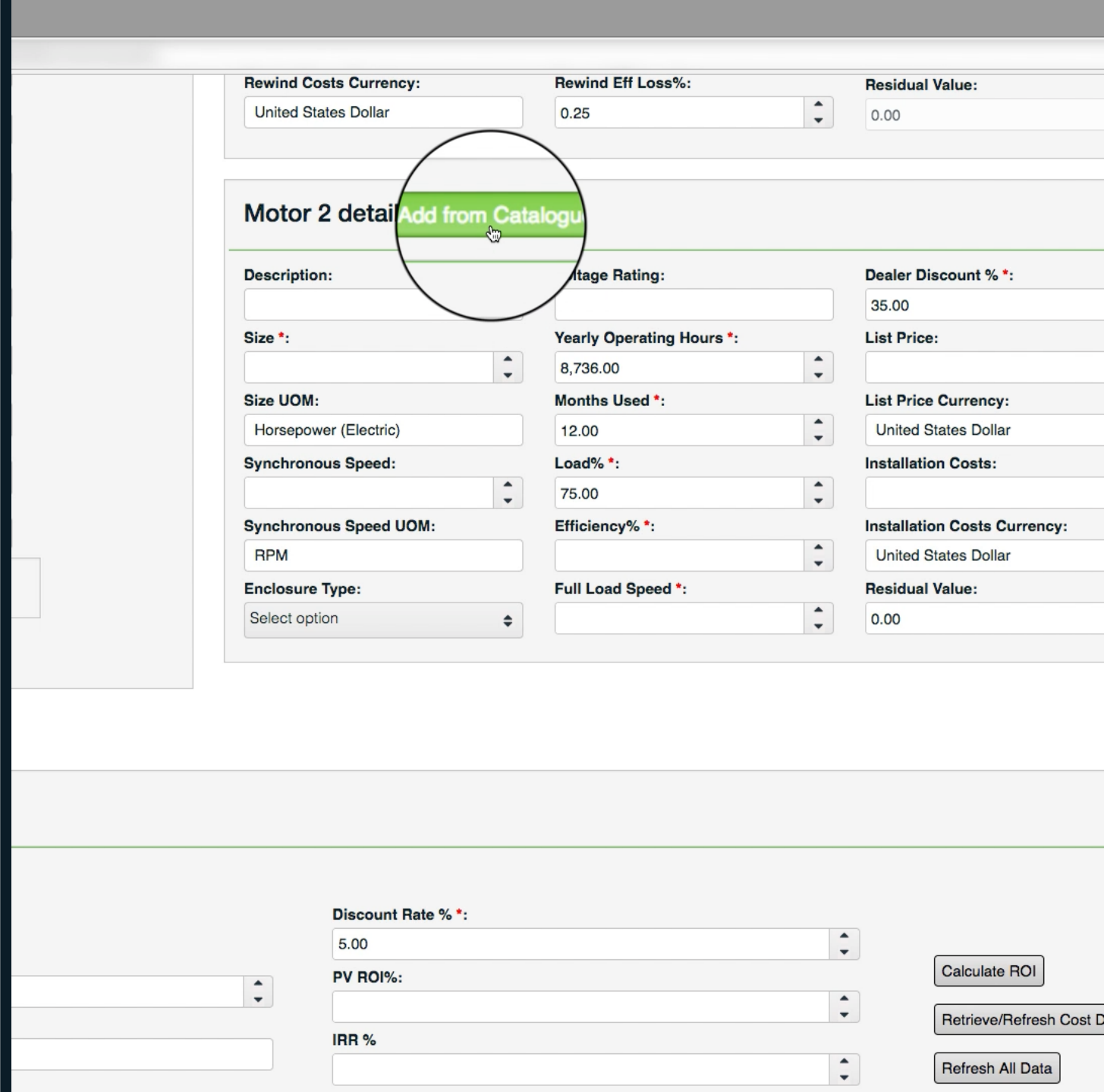
Motor 2 details [Add from Catalogue](#)

Description: <input type="text"/>	Voltage Rating: <input type="text"/>	Dealer Discount % *: 35.00
Size *: <input type="text"/>	Yearly Operating Hours *: 8,736.00	List Price: <input type="text"/>

6. If evaluating an existing motor, click [Add from My Motors](#) to import details from your Inventory

If evaluating two new motors, select [Add from Catalogue](#) to choose from Motors@Work's catalog

7. Select **Add from Catalogue** to choose the alternative motor from Motors@Work's catalog



The screenshot displays a software interface for configuring a motor. At the top, there are three input fields: "Rewind Costs Currency:" set to "United States Dollar", "Rewind Eff Loss%:" set to "0.25", and "Residual Value:" set to "0.00". Below these is a section titled "Motor 2 detail" with a green button labeled "Add from Catalogue" circled in black. The main configuration area is divided into three columns of fields:

- Left Column:** "Description:" (empty), "Size *:" (empty), "Size UOM:" set to "Horsepower (Electric)", "Synchronous Speed:" (empty), "Synchronous Speed UOM:" set to "RPM", and "Enclosure Type:" set to "Select option".
- Middle Column:** "Voltage Rating:" (empty), "Yearly Operating Hours *:" set to "8,736.00", "Months Used *:" set to "12.00", "Load% *:" set to "75.00", "Efficiency% *:" (empty), and "Full Load Speed *:" (empty).
- Right Column:** "Dealer Discount % *:" set to "35.00", "List Price:" (empty), "List Price Currency:" set to "United States Dollar", "Installation Costs:" (empty), "Installation Costs Currency:" set to "United States Dollar", and "Residual Value:" set to "0.00".

At the bottom of the interface, there are three more input fields: "Discount Rate % *:" set to "5.00", "PV ROI%:" (empty), and "IRR %:" (empty). On the right side, there are three buttons: "Calculate ROI", "Retrieve/Refresh Cost D", and "Refresh All Data".

Motors@Work - Efficiency for ...

Search criteria

Motor Evaluation

Motor Eval My Motors

Cancel

List

Desc	Model	Reference N...	Design	Sy
Ascending			NEVA Design B	1,800
Descending			NEVA Design B	1,800
Columns			NEVA Design B	1,800
Filter			NEVA Design B	1,800
- RSL PUMP MOTOR #1, 50- RSL-M-1		HV	NEVA Design B	1,500
#3			NEVA Design B	1,800
testtest			NEVA Design B	1,800
M1			NEVA Design B	1,800
Yemassee Test Motor 2	General Purpose, Premium Eff	Finished Water Motor 2	NEVA Design B	1,800
FRW-P1M			NEVA Design B	1,800
MOTOR - 15214 - SUPPLIED			NEVA Design B	1,800
AIR FAN MOTOR #4, 76-SAFM- 4	365T	OUTPUT	NEVA Design B	1,775

1 2 3 4 5 6 7 8

Yearly Demand Change% *: 1.00


Yearly Cost Change% *:

Description:

Size *:

ec2-54-91-0-59.compute-1.amazonaws.com:8085/motorevaluation#

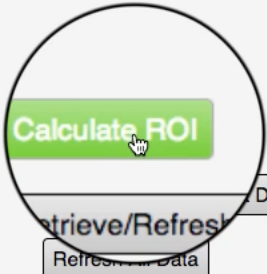
TIP

Click the  [Filter icon] to quickly search & sort your motor inventory as well as our extensive motor catalog


9. Complete any required fields for Motors 1 & 2 that weren't available in your motor inventory or Motors@Work's catalog
10. Click the **Calculate ROI** button to determine which motor is more cost-effective

Motor 2 details Add from Catalogue


Description: Toshiba replacement	Voltage Rating: 460 Volts	Dealer Discount % *: 35.00
Size *: 200.00	Yearly Operating Hours *: 8,736.00	List Price: 36,822.00
Size UOM: Horsepower (Electric)	Months Used *: 12.00	List Price Currency: United States Dollar
Synchronous Speed: 1,200.00	Load% *: 75.00	Installation Costs: 995.00
Synchronous Speed UOM: RPM	Efficiency% *: 96.20	Installation Costs Currency: United States Dollar
Enclosure Type: Totally Enclosed Fan-Cooled	Full Load Speed *: 1,190.00	Residual Value: 0.00

Discount Rate % *: 5.00	
PV ROI%: 	
IRR %: 	

[Details](#)
[Retrieve/Refresh Data](#)

Add from My Motors 

#1 MOTOR	Voltage Rating: 460 Volts	Dealer Discount % *: 10.00
	Yearly Operating hours *: 8,736.00	List Price:
	Months Used *: 12.00	List Price Currency: United States Dollar
	Load% *: 75.00	Installation Costs: 0.00
	Efficiency % *: 95.40	Installation Costs Currency: United States Dollar
	Full Load Speed *: 1,185.00	Rewind Costs: 5,750.00
	Rewind Eff Loss%: 0.25	Residual Value: 0.00

Add from Catalogue 

	Voltage Rating: 460 Volts	Dealer Discount % *: 35.00
	Yearly Operating Hours *: 8,736.00	List Price: 36,822.00
	Months Used *: 12.00	List Price Currency: United States Dollar
	Load% *: 75.00	Installation Costs: 995.00
	Efficiency% *: 96.20	Installation Costs Currency: United States Dollar
	Full Load Speed *:	Residual Value:

11. Motors@Work will display the NPV and IRR for the scenario as well as use a thumbs-up icon to indicate which is most cost-effective

Select the [Cost Details](#) tab to view cash flow over the period evaluated

TIP

Need to update your scenario? Revise the values in the applicable fields then click [Retrieve/Refresh Cost Details](#) to update your calculations.



Get an unexpected result?

Need more help?

Motors@Work's online [Help Library](#) contains the latest tips & tricks — just click the  [[Help icon](#)].