Energy curtains are becoming an integral part of the ‘total greenhouse system’ – cutting energy costs while improving crop conditions.

Find out how Union Gas can help your greenhouse profit from this double-value technology.

Union Gas - Working with you

Union Gas helps its customers at every stage of an energy project. In this case assisting them with the EnerSmart funding application that helped pay for a detailed engineering analysis. Union Gas also helped the business qualify for the energy efficiency incentive that contributed to installing their energy curtains. Financial assistance for both the study and the equipment, that totalled $21,576.00, was crucial to reducing project paybacks.

Call the energy experts at Union Gas

Union Gas is committed to helping agricultural customers make energy efficiency part of their business planning. If you’d like to learn more about our financial support for energy audits, feasibility studies and installation of energy efficient equipment, contact your Account Manager or visit enersmart.com/largebusiness.

Energy efficiency projects pay you year after year!
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Energy curtains are becoming an integral part of the ‘total greenhouse system’ – cutting energy costs while improving crop conditions.

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Greenhouse Energy Curtains

Summary
With funding assistance from Union Gas and Natural Resources Canada (NRCan), Lake Erie Farms Inc. installed energy curtains throughout their greenhouses. Now they are reaping the benefits of reduced energy use and lower energy costs. They have also seen a significant improvement in growing conditions. It all means healthier crops and a better bottom line.

Background
Lake Erie Farms Inc., in Courtland, Ontario, got its start in tobacco operations. In 2000, the agricultural producer added a new greenhouse complex covering approximately five acres that included three and a half acres of growing space. The main hothouse crop, English cucumbers, is produced year-round for Ontario and export markets.

Challenge
Energy costs are a major portion of greenhouse expenses. Despite some softening of prices in the recent recessions, the general trend is upwards. Lake Erie Farms considered several alternatives for cutting energy costs, these included use of biogas burners and foam insulating technologies. Energy curtains stood out as an attractive solution because they reduced heating load while improving growing conditions.

In this highly competitive business, every capital expenditure is scrutinized and requires a solid business case. But management had some real questions when it came to estimating the savings potential of this technology and assessing how it would perform in their operations.

Solution
The Union Gas EnerSmart program offers incentives for engineering analysis and feasibility studies to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouses would save approximately 21% of the natural gas used for heating. These results gave the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The movable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. In cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtain also reduces the volume of air that must be heated and their reflective strips direct heat back into the greenhouse. All of these features lower natural gas usage.

During days with high heat or intense sunlight, the curtains can shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

In their first year of operation, the energy curtains more than paid for themselves in energy savings identified in the engineering study. And the enhanced control of temperature, light and humidity has had an impressive impact on growing conditions. Lake Erie’s head grower, Henry Friesen, has been able to achieve better control of light and humidity as well as air and soil temperatures. As a result, he is seeing less plant stretch and stress while they are achieving more consistent crops with higher quality.

Lake Erie management concludes, “Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

Energy curtains help you maintain optimal growing temperatures while using less energy.

Business Benefits
• Natural gas reduced by 25%
• Less plant stretch and stress
• Better humidity control
• Better crop quality

Environmental Benefits
• More comfortable working conditions
• Reduced greenhouse gases

Wins & Highlights
• Natural gas consumption reduced by 25%
• Better control of growing conditions
• More comfortable working environment
• Union Gas EnerSmart support for engineering study and $16,576 in equipment incentives

Energy curtains are a major portion of greenhouse expenses. Despite some softening of prices in the recent recessions, the general trend is upwards. Lake Erie Farms considered several alternatives for cutting energy costs, these included use of biogas burners and foam insulating technologies. Energy curtains stood out as an attractive solution because they reduced heating load while improving growing conditions. In this highly competitive business, every capital expenditure is scrutinized and requires a solid business case. But management had some real questions when it came to estimating the savings potential of this technology and assessing how it would perform in their operations.

The Union Gas EnerSmart program offers incentives for engineering analysis and feasibility studies to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouses would save approximately 21% of the natural gas used for heating. These results gave the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The movable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. In cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtain also reduces the volume of air that must be heated and their reflective strips direct heat back into the greenhouse. All of these features lower natural gas usage.

During days with high heat or intense sunlight, the curtains can shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

In their first year of operation, the energy curtains more than paid for themselves in energy savings identified in the engineering study. And the enhanced control of temperature, light and humidity has had an impressive impact on growing conditions. Lake Erie’s head grower, Henry Friesen, has been able to achieve better control of light and humidity as well as air and soil temperatures. As a result, he is seeing less plant stretch and stress while they are achieving more consistent crops with higher quality.

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The Union Gas EnerSmart program offers incentives for engineering analysis and feasibility studies to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouses would save approximately 21% of the natural gas used for heating. These results gave the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The movable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. In cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtain also reduces the volume of air that must be heated and their reflective strips direct heat back into the greenhouse. All of these features lower natural gas usage.

During days with high heat or intense sunlight, the curtains can shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

In their first year of operation, the energy curtains more than paid for themselves in energy savings identified in the engineering study. And the enhanced control of temperature, light and humidity has had an impressive impact on growing conditions. Lake Erie’s head grower, Henry Friesen, has been able to achieve better control of light and humidity as well as air and soil temperatures. As a result, he is seeing less plant stretch and stress while they are achieving more consistent crops with higher quality.

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The Union Gas EnerSmart program offers incentives for engineering analysis and feasibility studies to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouses would save approximately 21% of the natural gas used for heating. These results gave the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The movable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. In cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtain also reduces the volume of air that must be heated and their reflective strips direct heat back into the greenhouse. All of these features lower natural gas usage.

During days with high heat or intense sunlight, the curtains can shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

In their first year of operation, the energy curtains more than paid for themselves in energy savings identified in the engineering study. And the enhanced control of temperature, light and humidity has had an impressive impact on growing conditions. Lake Erie’s head grower, Henry Friesen, has been able to achieve better control of light and humidity as well as air and soil temperatures. As a result, he is seeing less plant stretch and stress while they are achieving more consistent crops with higher quality.

Lake Erie management concludes, “Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

Energy curtains help you maintain optimal growing temperatures while using less energy.

Business Benefits
• Natural gas reduced by 25%
• Less plant stretch and stress
• Better humidity control
• Better crop quality

Environmental Benefits
• More comfortable working conditions
• Reduced greenhouse gases

Wins & Highlights
• Natural gas consumption reduced by 25%
• Better control of growing conditions
• More comfortable working environment
• Union Gas EnerSmart support for engineering study and $16,576 in equipment incentives

Energy curtains help you maintain optimal growing temperatures while using less energy.
**Greenhouse Energy Curtains**

**Challenge**

Energy costs are a major portion of greenhouse expenses. Despite some softening of prices in the recent recession, the general trend is upward. Lake Erie Farms considered several alternatives for cutting energy costs, these included use of hot air berm technology and moveable insulation technologies. Energy curtains stood out as an attractive solution because they reduced heating load while improving growing conditions. In this highly competitive business, every capital expenditure is scrutinized and requires a solid business case. But management found some real question marks when it came to estimating the savings potential of this technology and assessing how it would perform in their operations.

**Solution**

The Union Gas EnerSmart program offers incentives for engineering analysis and the opportunity to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouse would save approximately 21% of the natural gas used for heating. These results gave the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated. The moveable curtains for installation across all three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated.

**Wins & Highlights**

- Natural gas consumption reduced by 25%
- Better control of growing conditions
- More comfortable working environment
- Union Gas EnerSmart support for engineering study and $16,575 in equipment incentives

**Energy curtains help you maintain optimal growing temperatures while using less energy**

- **Environmental Benefits**
  - Reduced greenhouse gases
  - Less plant stretch and stress
  - Better humidity control
  - Better crop quality

**Business Benefits**

- Natural gas reduced by 25%
- Less plant stretch and stress
- Better humidity control
- Better crop quality

**Lake Erie management concludes,**

“Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

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**Summary**

With funding assistance from Union Gas and Natural Resources Canada (NRCan), Lake Erie Farms Inc. installed energy curtains throughout their greenhouses. Now they are reaping the benefits of reduced energy use and lower energy costs. They have also seen a significant improvement in growing conditions. All mean healthier crops and a better bottom line.

**Background**

Lake Erie Farms Inc., in Courtland, Ontario, got its start in tobacco production but has successfully diversified into other market crops. In 2000, the agricultural producer added a greenhouse complex covering approximately five acres that included three and a half acres of growing space. The main greenhouse, English cucumbers, is produced year-round for Ontario and export markets. The main hothouse crop, English cucumbers, is produced year-round for Ontario and export markets.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior screens for installation across all three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated. The moveable curtains for installation across all three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This trap an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated.

**Environmental Benefits**

- Reduced greenhouse gases
- Less plant stretch and stress
- Better humidity control
- Better crop quality

**Business Benefits**

- Natural gas reduced by 25%
- Less plant stretch and stress
- Better humidity control
- Better crop quality

**Lake Erie management concludes,**

“Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

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"Lots of people come and try to persuade us to invest in costly energy-saving projects and claiming they will save money. But you don’t really know until you have a program like this where you have some assessment done beforehand. The engineering study funded by Union Gas gave credibility to the savings numbers. And the incentives from Union Gas and NRCan helped reduce the upfront costs. Now that we’ve had the energy curtains in place for a year, you can really see the benefits. It was nice we had installed them last season. The energy savings and other benefits definitely justify the cost."
Summary

With funding assistance from Union Gas and Natural Resources Canada (NRCan), Lake Erie Farms Inc. installed energy curtains throughout their greenhouses. Now they are reaping the benefits of reduced energy use and lower energy costs. They have also seen significant improvement in growing conditions. It all means healthier crops and a better bottom line.

Background

Lake Erie Farms Inc., in Courtland, Ontario, got its start in tobacco production but has successfully diversified into other market crops. In 2000, the agricultural producer added a new greenhouse complex covering approximately five acres that included three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This traps an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated as they shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

Challenge

Energy costs are a major portion of greenhouse expenses. Despite some softening of prices in the recent recession, the general trend is upwards. Lake Erie Farms considered several alternatives for cutting energy costs, these included use of biogas burners and foam insulating technologies. Energy curtains stood out as an attractive solution because they reduced heating load while improving growing conditions.

In this highly competitive business, every capital expenditure is scrutinized and requires a solid business case. Not surprisingly, one real question mark when it came to estimating the savings potential of this technology and summing how it would perform in their operations.

Solution

The Union Gas EnerSmart program offers incentives for engineering analysis and feasibility studies to prove savings potential for new technologies. Lake Erie Farms took advantage of this program to commission an engineering assessment of energy curtains for their facility. The study indicated that installing energy curtains in all greenhouses would save approximately 21% of the natural gas used for heating. These results panned the green light to the project.

In early 2009, Lake Erie selected Bonar Technical Fabrics’ PH 55 interior conserves for installation across all three and a half acres of production greenhouses. The moveable curtains, mounted under the overhead panels, are constructed of alternating strips of aluminum and transparent fabric. On cold nights the curtains are closed. This traps an insulating layer of air between the curtain and the greenhouse roof, reducing heat losses. The curtains also reduce the volume of air that must be heated as they shade or partially screen crops to cool, protect, and diffuse the light while they ensure uniform solar intensity. They also assist with humidity management. The whole system is controlled by pulleys and drives linked to the greenhouse’s computerized controls, saving labour and ensuring an automatic response to changing climate conditions.

In their first year of operation, the energy curtains more than met performance expectation by exceeding the estimated natural gas savings identified in the engineering study. And the enhanced control of temperature, light and humidity has had an impressive impact on growing conditions. Lake Erie’s head grower, Henry Finney, has been able to achieve better control of light and humidity as well as air and soil temperatures. As a result, he is seeing less plant stretch and stress while they are achieving more consistent crops with higher quality. Lake Erie management concludes, “Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

Energy curtains help you maintain optimal growing temperatures while using less energy

Environmental Benefits

• More comfortable working conditions
• Reduced greenhouse gases
• Better crop quality
• Better humidity control

Business Benefits

• Natural gas reduced by 25%
• Less plant stretch and stress
• Better humidity control
• Better crop quality

Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

Wins & Highlights

• Natural gas consumption reduced by 25%
• Better control of growing conditions
• More comfortable working environment
• Union Gas EnerSmart support for engineering study and $16,576 in equipment incentives

Lake Erie management concludes, “Energy curtains are the most cost effective method of reducing greenhouse operation costs.”

Lake Erie Farms

General Manager
Trish Fournier

Courtland, Ontario

Lake Erie Farms

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