



MAGIC Fund Screening Committee

September 29, 2023 at 7:30am

City Hall- Council Chambers - 10 3rd Ave SW, Minot, 2nd floor.

701-857-4750

1. ROLL CALL

2. APPROVAL OF MINUTES

Documents:

[MAGIC FUND SCREENING COMMITTEE MEETING MINUTES 2-17-2023.PDF](#)

3. HOT SWITCH HEATING SYSTEMS

Hot Switch Heating Systems, LLC (under Fiberglass Specialties in Minot, N.D.) has been approved by United Community Bank of ND/Bravera for a PACE loan. Through the MAGIC Fund, the business is looking to secure the community's portion of the interest buydown; this portion is \$215,384.65. BND will provide their portion of this 65/35 split in the amount of \$400,000, as an interest buydown.

Documents:

[MINOT CHAMBER EDC_MAGIC FUND MEMO_HOT SWITCH HEATING SYSTEMS_FINAL_092523.PDF](#)
[HOT SWITCH MAGIC FUND APPLICATION 8.21.2023 1.PDF](#)
[HOT SWITCH BUSINESS PLAN.PDF](#)
[HOT SWITCH LITERATURE.PDF](#)
[PRIMARY SECTOR CERT.PDF](#)

4. ADJOURNMENT



MAGIC Fund Screening Committee Meeting Minutes

February 17, 2023

Meeting was called to order by Todd Harris at 7:30am

ROLL CALL

Members Present: Kelly Perrin, Dan Ternes, Todd Harris, Kevin Seehafer, Todd Telin, & Travis Mowbray
Jordan Nelson- VIA TEAMS

APPROVAL OF MINUTES

Todd Telin moved the October 21, 2022 meeting minutes be approved as submitted. The Above motion was seconded by Jordan Nelson and passed by the following roll call votes:

Ayes: Todd Telin, Travis Mowbray, Jordan Nelson, Kelly Perrin, Dan Ternes, Todd Harris, & Kevin Seehafer. Nays: None

SOURIS BASIN PLANNING COUNCIL REQUEST OF FUNDS

Souris Basin Planning Council (SBPC) is requesting an additional \$805,300 investment into an existing program, the Business Accelerator Fund (BAF). The BAF is used as the regional match program for the Bank of North Dakota Flex PACE program. SBPC anticipates using the funds over the next year.

Mark Lyman introduced himself and Spoke on behalf of the Minot Area Chamber EDC in favor of the Souris Basin Planning Council (SBPC) requesting the \$805,300. MACEDC feels this program fits all the criteria of being a good fit with use of MAGIC Fund dollars. Mark Introduced Briselda Hernandez the Executive Director for Souris Basin Planning Council.

Briselda Hernandez went over her PowerPoint Presentation for the Committee. Business Accelerator Fund Request of 805,300.00. March 2019 the SBPC went before the MAGIC Fund Committee to help with matching funds for the PACE and FLEX Programs. They found that the MAGIC Fund was a great Source of Funding.

Souris Basin Planning Council serves the communities and counties within North Dakota Region 2 (Bottineau, Burke, McHenry, Mountrail, Renville, Pierce, and Ward Counties). SBPC has been a partner in progress for cities, counties, nonprofits, and entrepreneurs since 1972. They are a solutions-based team of entrepreneurs, elected officials, volunteers, and staff finding and creating opportunities within our region's communities.

The Business Accelerator Fund was established by SBPC with the approval of \$1 million in funds from the City of Minot MAGIC Fund in 2019. The goals of the BAF are to build resilient communities and enhance quality of life in North Dakota Region 2. The BAF has been established as a community source for Bank of North Dakota's (BND) PACE and Flex PACE programs. At this point, the use of the funds has been strictly for Flex PACE programs.

Projects at a glance: Allocated Funds \$1,634,610.
They have approved 34 projects totaling \$44.8 mm
Projects in Minot Alone 29 totaling \$39.4mm
Projects in our Minot Downtown 12 totaling \$15mm

A couple of business that have been helped through this program are Mi Mexico with a business expansion. They help with business startups, First Time Entrepreneurs, Building Renovations & Restorations such as The Station - Urban Gourmet. This was an old gas station and they have since made this into a coffee house. Axel Building- Prairie Sky Breads in our Downtown area and the renovated the building, rejuvenating our downtown area.

Since 2015- 2022 BND Invested \$29,434,369 in Flex Pace and Pace Loans

2015-200m
2016- Nothing
2017- 748m
2018- Nothing
2019- 1.24mm
2020- 1.67mm
2021- 4.14mm
2022- 21.43mm

Travis Mowbray moved to approve the Souris Basin Planning Council request of 805,300 investment into the existing program, the Business Accelerator Fund. The Above motion was seconded by Todd Harris and passed by the following roll call votes:

Ayes: Travis Mowbray, Jordan Nelson, Kelly Perrin, Dan Ternes, Todd Harris, Kevin Seehafer & Todd Telin. Nays: None

FINANCIAL REPORT

Jenna Zelinski the City of Minot Comptroller was present and asked if the committee had any questions with the Balance Sheet and Incomes Statements from December 2022.

ADJOURNMENT

Travis Mowbray approved the adjournment with no other business to discuss and Kelly Perrin second the motion.

Adjournment at 8:06am
Respectfully submitted by Anna Schraeder.

MEMO

TO: MAGIC Fund Screening Committee and City Council
FROM: Brekka Kramer, MACEDC President | CEO
DATE: September 25, 2023
SUBJECT: MAGIC Fund Request – Hot Switch Heating Systems, LLC

1. Request

Hot Switch Heating Systems, LLC (under Fiberglass Specialties in Minot, N.D.) has been approved by United Community Bank of ND/Bravera for a PACE loan. Through the MAGIC Fund, the business is looking to secure the community's portion of the interest buydown; this portion is \$215,384.65. BND will provide their portion of this 65/35 split in the amount of \$400,000, as an interest buydown.

2. Background

Hot Switch Heating Systems: Rooted in the mission "we keep trains moving", Hot Switch Heating Systems is dedicated to revolutionizing the rail switch heating sector. Founded in 2015 by two visionaries in Jacksonville, FL, the company is a pioneer in using induction heating to keep railroad tracks clear of snow and ice. After merging with Fiberglass Specialties in 2023, the combined strengths of both brands now serve as a one-stop solution for railroad switch heating.

The primary aim of this merger and associated expansion is to scale up the production of the Hot Switch Heating System, marrying it with the fiberglass switch cover system from Fiberglass Specialties. This project seeks to relocate and centralize production in Minot.

3. Project Description

Hot Switch Heating Systems has already made its mark with associations such as Norfolk Southern, Alaska Rail, and TranStar Rail. Looking forward, the company is setting its sights on securing significant projects in major hubs like New York City and Washington, D.C. The goal of this merger and expansion is to make Hot Switch the gold standard for rail switch heating across North America, targeting the more than seventy thousand switches of both major railroads and city metro systems.

In the immediate horizon, Hot Switch aims to hire two full-time employees for production and system build outs. As the production scales and revenue targets are achieved, the company intends to employ additional roles in sales, production, and research within the next five years.

Centralizing production in Minot will not only boost the local economy through job creation and bringing wealth from outside North Dakota but also maintains Minot's heart and long history as a hub for innovative rail solutions.

Backed by a moat of patents and a unique value proposition, Hot Switch is poised for market leadership. As the sole provider of induction heating for rails, coupled with Fiberglass Specialties' switch covers, the company is well positioned to capture a significant market share, promising sustainable growth.

This support from the MAGIC Fund will significantly reduce the cost of capital, allowing Hot Switch Heating Systems to reinvest more into job creation, R&D, and marketing. Over the span of the loan, this interest buy-down would result in savings of more than \$600,000 directly contributing to company growth and community benefits.

The loans being requested are for an approximately \$3.5 million project. See attached documents for additional description and paperwork associated with Hot Switch Heating Systems, LLC.

4. Financing

Bank Loan:	\$3,150,000
Personal Investment:	\$350,100
Total Sources:	\$3,500,100

5. Screening Process

A detailed screening process is executed by the Minot Area Chamber EDC when an application is received for MAGIC Fund dollars. This includes reviewing roughly nine key elements that are expressed in the MAGIC Fund Guidelines.

Pages 2 and 3 of the guidelines include the following items we have deemed important for the review process:

1. For use in economic and industrial development
 - o MACEDC has determined that this Hot Switch Heating Systems application meets this requirement.
2. To businesses that desire to expand or locate in the greater Minot trade area



- MACEDC has determined that this Hot Switch Heating Systems application meets this requirement.
- 3. Financing projects to support business growth in the primary Sectors OR Capitalization of revolving loan funds dedicated to addressing financing needs of small businesses not available through traditional financial institutions OR Marketing directly connected to attraction of opportunities to accomplish business growth in the Primary Sectors and use of capitalized small business revolving loan funds.
 - Hot Switch Heating Systems is a Primary Sector company as recognized through an application process through the North Dakota Department of Commerce. The business plan and conversations with the business applicant indicate that the business will attract a majority of its profit from outside of the state. MACEDC readily agrees with this qualification.
- 4. MUST support one or more of the following goals:
 - Create new jobs
 - Save existing jobs
 - Expand the local tax base
 - Increase capital investments
 - Improve the entrepreneurial climate of the region
 - MACEDC agrees with Hot Switch Heating Systems' assertions in their application that they will be creating new jobs, expanding the local tax base and increasing capital investment into a growing Minot area company.
- 5. MAY be used for workforce development to attract workers to meet workforce deficiencies within the Primary Sectors OR small business revolving loan funds
 - This item does not apply to this application. Hot Switch Heating Systems is not asking for workforce development funding.
- 6. Non-profit organizations will be considered for these funds only when it can be determined that the non-profit venture meets a purpose and goal for which the MAGIC Fund can be used based on these guidelines.
 - Hot Switch Heating Systems is a private, for-profit company and this section of the guidelines does not apply to them.

(The following items are found on page 9, under the Application Review Guidance section)

- 7. The following guidelines are intended to serve as a source of general guidance for Committee members in the administration of this program. It is important to note that the economic development needs of the area are such that a large degree of procedural flexibility is necessary to capitalize on windows of opportunity. In that context, administration of the MAGIC Fund must be dynamic enough to insure that the monies made available by this tax are prudently applied to

the economic development needs of the area consistent with the guidelines and policies of the MAGIC Fund and policy guidance established and regularly updated by the City Council.

- MACEDC views the Hot Switch Heating Systems request for MAGIC Fund support as the clearest use of these funds and has one of the least needs for procedural flexibility.
- 8. The acid test of the value of an application will be the relative positive “impact mix” of the business on the economy of the region.
 - The number of jobs created or saved
 - Quality of those jobs
 - Expansion of the tax base
 - Financial mix (level of owner’s equity)
 - Organizational growth potential
 - Environmental impact
 - Use of regional materials in production process
 - Amount of third-party participation
 - Amount of primary money generated by the project
- The referenced acid test takes in to account a variety of factors tied to the value of an application – one could look at this test as “What is the ROI/Impact of giving these funds to this particular project?” Much of the return on a \$215,384.65 request (forgivable loan) comes out in measurable items that would be included in a development agreement. MACEDC has laid out recommendations to measure the ROI tied to this request.
- 9. MUST be clear, measurable performance benchmarks to regularly monitor compliance and performance.
 - Assuming that there are clear, measurable benchmarks in a BIA, and that they are agreed to by all parties, then this section of the review would be satisfied. Due to the low-risk nature of participating in the BND PACE program, MACEDC proposes a 3-year developer agreement to track growth and use of the funds.

6. Recommendation

It is the recommendation of the Minot Area Chamber EDC to support this MAGIC Fund request. As a part of the request, we would ask for the \$215,384.65 in PACE interest loan buydown from the MAGIC Fund Steering Committee and the Minot City Council for Hot Switch Heating Systems.

The MAGIC Fund has been used for efforts of this sort many times in the past. This application represents one of the lowest risks for the MAGIC Fund to aid growth within a primary sector company that employs nearly a dozen individuals in our community. The local bank and BND have gone through their underwriting criteria and credit analysis of the borrower and deemed them to be eligible.

Regarding stewardship for the MAGIC Funds, Minot Area Chamber EDC recommends that project tracking procedures associated with the development agreement include the number of new employees



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Minot, North Dakota 58702-0940

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www.minotchamberedc.com
minot@minotchamberedc.com

tied to Hot Switch Heating Systems and the continued operation of the new line of business at the end of each year. These funds would be structured as a forgivable loan, should these metrics be met.

End of year 1	Total employees as a result of the merger – 2
End of year 2	Total employees as a result of the merger – 3
End of year 3	Total employees as a result of the merger – 3

MAGIC FUND APPLICATION

I. MAGIC FUND CONTACT OFFICE OF RESPONSIBILITY: _____

II. PREVIOUS MAGIC FUND PROPOSALS/APPLICATIONS: _____

III. THE FIRM:

A. Name of Company: Hot Switch Heating Systems / Fiberglass Specialties

B. Corporate Address: 7600 Highway 2 East, Minot, ND 58701

C. Project Address: 7600 Highway 2 East, Minot, ND 58701

D. Telephone: 701-839-4856

E. Form of Business Ownership: LLC

1. If a Corporation, Indicate Federal Tax ID #: 93-2282232

F. Project Principal(s)/Contact(s):

Name	Address	% Ownership
Meagan Kunnanz	7600 Highway 2 East	100%

G. Product or Service: _____

H. Phase of Project: _____ start-up X expansion _____ retention

I. Current Company Status:

1. Current Number of Employees

a. Full Time: 11 Average Hourly Wage: \$22.00

b. Part Time: 0 Average Hourly Wage: _____

J. Primary Bank Account(s)

1. Name: United Community Bank of ND

2. Address: 925 20th Ave SW, Minot, ND 58701

3. Telephone: 701.839.3500

4. Contact Person: Roscoe Streyle

K. Company Attorney

1. Name: Tom Kading / Fargo Patent and Business Law

2. Address: 2605 42nd Street S, Fargo, ND 58104

3. Telephone: 701.566.7571

IV. PROJECT FUNDS SOURCE/USE STATEMENT

Source	Amount/Form	Use
United Community Bank	\$3,150,000.00	Hot Switch Purchase
Personal Investment	\$350,100.00	Hot Switch Purchase
TOTAL	\$ 3,500,100.00	

V. CURRENT AND PROJECTED EMPLOYMENT

	Existing Jobs	Employment Projections	
	<u>8.18.2023</u> (date)	<u>2024</u> (year)	<u>2025</u> (year)
Professional	<u>1</u>	<u>1</u>	<u>1</u>
Managerial	<u>1</u>	<u>1</u>	<u>1</u>
Skilled	<u>2</u>	<u>2</u>	<u>2</u>
Semi-Skilled	<u>7</u>	<u>9</u>	<u>10</u>
Unskilled	<u></u>	<u></u>	<u></u>
Total	<u>11</u>	<u>13</u>	<u>14</u>
Average Hourly Wage Each Year	\$22.00	\$23.00	\$24.00

VI. ALL APPLICANTS

- A. A completed MAGIC Fund Application form.
- A. Enclose information concerning any pending or threatening litigation or administrative proceeding or any outstanding administration orders, judgments, or injunctions to include company officials or any of the principals involved in bankruptcy (for the past five years)

VII. NEW BUSINESS VENTURES

- A. List three professional and three personal references.
 - 1. (professional) United Community Bank - Roscoe Streyle - 701.839.3500
 - 2. (professional) BNSF - Kip Brandt - 701.205.5214
 - 3. (professional) Dakota Tax - Randy Froseth - 701.839.4198
 - 4. (personal) Linda Hildahl - 701.720.7283
 - 5. (personal) Jeff Stremick - 701.721.2584
 - 6. (personal) Jeff Anderson - 701.340.4104
- B. A business plan that include no less than three years pro-forma financial statements (balance sheet, income statement and cashflow statement).
- C. Signed personal financial statements for all principals who hold more than 20% interest in the venture.

VIII. EXISTING BUSINESSES (Expansion/Retention/Relocation)

- A. Enclose financial statements for the past three fiscal years, including: balance sheets, income statements. If unaudited, the statements must be signed and dated by an authorized financial officer of the business.
- B. Enclose most recent interim financial statements (balance sheet and income statements).
- C. Enclose Federal Tax returns filed by the business principals for the previous three years, if the applicant is a sole proprietorship, partnership, or corporation that does not have its financial statements audited or reviewed.
- D. Enclose a business plan, which shall include no less than three years of pro-forma financial statements (balance sheet, income statement, and cashflow statement).
- E. Attach a typewritten narrative describing the company, the project, markets served, jobs being retained/created, benefits offered, community/regional impact, competition, and any other information that may help describe the project and funding request.

The data which you supply to this department will be used to assess your firm's qualifications for MAGIC Fund assistance. Any information the company deems confidential/proprietary should be defined when presenting the application. All information submitted that can be protected by the North Dakota open records laws will be omitted from the public record as determined appropriate.

By signing below you represent that you are duly authorized to verify the foregoing application, that you have read it, and that you are familiar with the statements contained therein, which you verify are true.

SIGNATURE AND TITLE Megan Kunnang *Managing Member*

DATE: 8.21.2023



I. Company Description

Hot Switch Heating Systems: Rooted in the mission "we keep trains moving", Hot Switch Heating Systems is dedicated to revolutionizing the rail switch heating sector. Founded in 2015 by two visionaries in Jacksonville, FL, the company is a pioneer in using induction heating to keep tracks clear of snow and ice. After merging with Fiberglass Specialties in 2023, the combined strengths of both brands now serve as a one-stop solution for railroad switch heating.

II. Project Description

The primary aim is to scale up the production of the Hot Switch Heating System, marrying it with the fiberglass switch cover system from Fiberglass Specialties. This project seeks to relocate and centralize production in Minot.

III. Markets to be Served

Hot Switch Heating Systems has already made its mark with associations such as Norfolk Southern, Alaska Rail, and TranStar Rail. Looking forward, the company is setting sights on securing significant projects in major hubs like New York City and Washington, DC. The goal is to make Hot Switch the gold standard for rail switch heating across North America, targeting the over seventy thousand switches of both major railroads and city metro systems.

IV. Job Creation

In the immediate horizon, Hot Switch aims to hire two full-time employees for production and system build outs. As the production scales and revenue targets are achieved, the company intends to employ additional roles in sales, production, and research within the next five years.

V. Community Impact

Centralizing production in Minot will not only boost the local economy through job creation and bringing wealth from outside North Dakota but also maintains Minot's heart and long history as a hub for innovative rail solutions.

VI. Investment & Growth Opportunities

Immediate Returns:

The projected growth from \$1.8 million to over \$9 million in the span of 5 years promises a robust return. With the community's investment, Hot Switch can scale rapidly, ensuring swift returns both for the community and the business.

Long-term Vision:

Backed by a moat of patents and a unique value proposition, Hot Switch is poised for market leadership. As the sole provider of induction heating for rails, coupled with Fiberglass Specialties' switch covers, the company is well-positioned to capture a significant market share, promising sustainable growth.

Utilization of the \$215,000 Interest Buy-Down:

This support from the city council will significantly reduce the cost of capital, allowing Hot Switch to reinvest more into job creation, R&D, and marketing. Over the span of the loan, this interest buy-down could result in savings of over \$600,000 directly contributing to company growth and community benefits.

In conclusion, Hot Switch Heating Systems offers a promising venture not just in terms of returns but also in the positive ripple effects it brings to the community. Through innovation, job creation, and sustainable practices, the company is poised to be a beacon of growth and progress in Minot, ND. The support of the city council will be pivotal in translating this vision into reality.

Please visit our Hot Switch and Fiberglass Specialties Websites for more information. We are currently working on a new website that will include both the Magnetic Induction Heating System and Fiberglass Switch Heater Covers. This will be an integral part of our selling process and will showcase the two systems.

www.HotSwitchHeatingSystems.com

www.FiberglassSpecialtiesND.com



Hot Switch Heating System



Fiberglass Switch Heater Covers



Installation photos of Hot Switch Heating Systems on the Rail



Control Cabinet Box for the Hot Switch Heating System

HOT SWITCH HEATING SYSTEMS

The Best of the Best

Proven reliability in environments as far north as the US Alaskan territories.

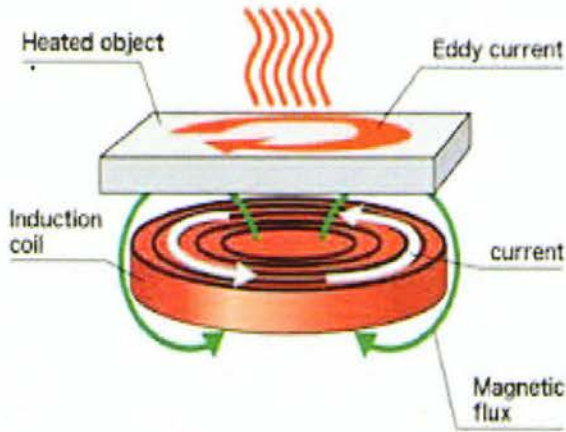
- ★ The most powerful Switch Heater System on the Market.
- ★ Operates on 120 VAC and uses 40% of the energy of a typical Cal Rod System.
- ★ Photo was taken on 800 Watts power setting. 1800 Watts available.
- ★ Photo was taken at a temperature of minus 14°F and with 15 - 20 MPH wind chill.



Contact Us at: <http://www.hotswitchheatingsystems.com>

HOT SWITCH HEATING SYSTEMS

Electromagnetic Induction Heat Illustration



How Does It Work

Our patent pending products heat the rail by using electromagnetic induction heating. When a high frequency alternating current passes through the induction coil, the electromagnet creates a magnetic field which penetrates the object generating electric currents called eddy currents. As the currents flow through the object, the resistance of the movement of the electrons caused by the current produces heat within the object.

Why is it Better

An important feature of the induction heating process is that the heat is generated inside the rail itself, instead of by an external heat source via heat conduction or resistive heat. Thus, objects can be heated very rapidly. Once the rail is heated to the optimal temperature, our heaters will automatically cycle to a power saving mode. In addition there is no need for any external contact, which can be important where space is limited and other objects are present. Lastly, the product can operate on 120VAC which is much safer for your field employees than a 480V 3 phase service needed for other heating alternatives.

- ♦ **Rapid Heat**
- ♦ **Automatic Power Saving mode**
- ♦ **Can heat tight spaces**
- ♦ **Safer to operate 120VAC**

Lower Costs

+

Less Environmental Footprint

=

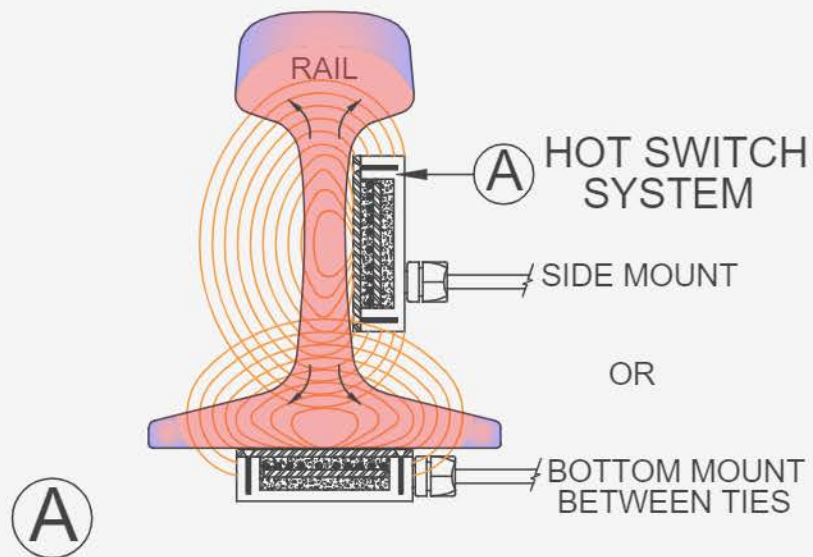
Better Operating Ratio

Improved Operating Ratios

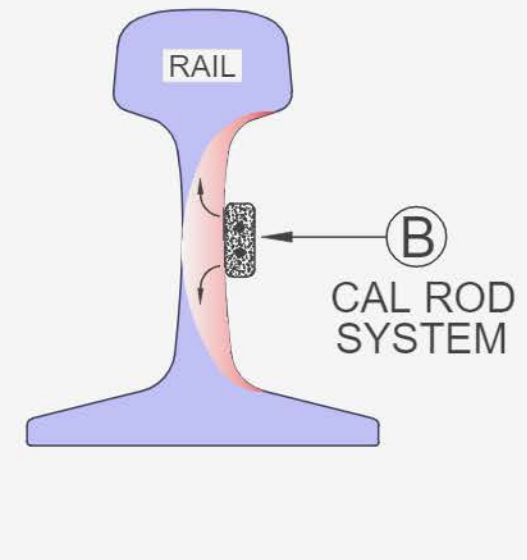
Rail operators continue to look for new ways to reduce operational costs. Additionally, each year rail operators implement new initiatives to reduce their overall environmental impact. Thermal Brick Energy switch heaters offer a win—win solution. Not only will our switch heaters reduce your operational costs by automatically switching to a power saving mode but our heaters will also help your company show meaningful reductions in energy which is always good for the environment.

Contact Us: hotswitchheatingsystems.com

THE HOT SWITCH DIFFERENCE:

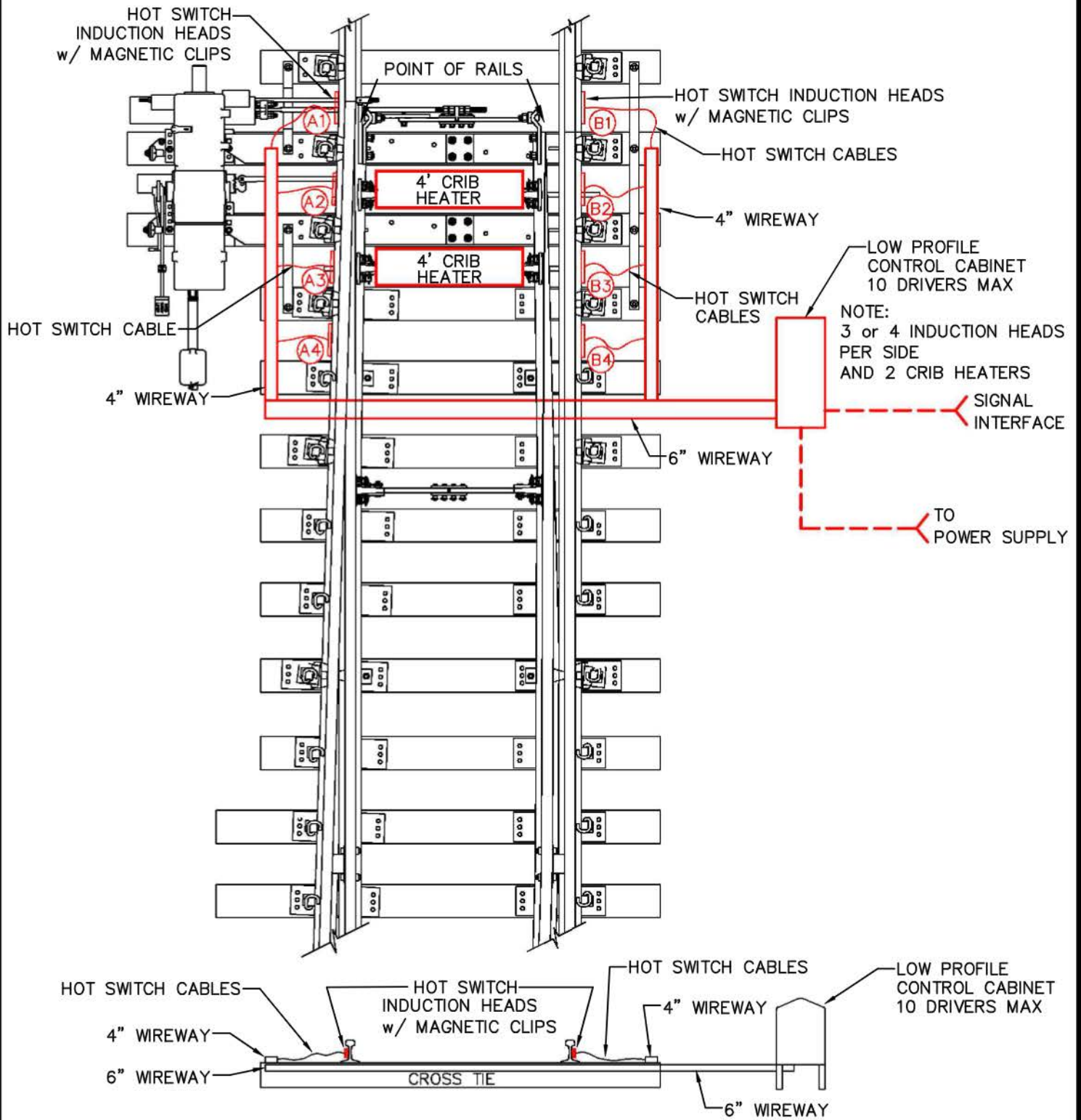


- The Eddy Current Field generated by the inductive heads excites the steel atoms within the rail and the core of the rail becomes the heat source.
- The magnetic field extends beyond the HOT SWITCH BRICK on the side or the bottom of the rail and covers up to 80 % of the mass of the rail. As the surface area of the heat source is many times that of the Cal Rod, the heating efficiency is greatly enhanced over that of a Cal Rod.
- The Inductive Heads operate on 120 VAC which is the most widely available operating voltage in the US and only consumes about six amps per head.
- The HOT SWITCH BRICKS can deliver 500 to 1000 WATTS per foot on demand.
- The system can instantly adjust power levels at the heads and neutralize a cold weather event.
- Unlike the Cal Rod system, maintaining firm contact with the rail is not necessary. The HOT SWITCH BRICKS can be up to 1/2 inch away from the rail and the eddy current field is fully effective.
- Should a problem occur with a head, it can be repaired in seconds while the other adjacent heads continue to heat the rail.



- Typical flat Cal Rod systems induce heat to the rail by thermal transfer with 1/2 the heat expended to the outside air.
- The Cal Rod units have a maximum of 500 Watts per foot.
- Most Cal Rod Systems require high input voltage, but 240/480 Volts is not always available in remote locations.
- The Cal Rod Systems overall efficiency is dependent on maintaining good surface contact with the rail.
- When a Cal Rod fails, you lose heating on the entire side of the switch and replacement of the rod takes significant time. Also, upon failure, electricity can be induced into the rail creating dangerous situations.
- Because a large portion of the heat generated by Cal Rods escapes into the atmosphere, testing has shown that HOT SWITCH SYSTEMS can heat more efficiently reducing power consumption for a single switch by as much as 50%.

HOT SWITCH HEATING SYSTEMS
 Contact: www.hotswitchheatingsystems.com



SWITCH #8

HOT SWITCH HEATING SYSTEMS

NORFOLK SOUTHERN RAILROAD

SWITCH #8

SCALE: N.T.S.
DATE: 3/11/2020
DRAWN: JSS
CHK'D: ROO

PROJECT NUMBER

DRAWING NO.

SHEET 1

Contact Us at: <http://www.hotswitchheatingsystems.com>



Hot Switch Heating Systems:

Hot Switch Performance Evaluation:

Background: Winter heating season 2019-2020

A major US Class One Railroad has been using Cal Rod Systems and Hot Air Blowers to keep there railroad switches clear of snow and ice during the winter season. Over the years, the Hot Air Blower units have proven to be the most energy efficient after the propane gas prices fell. This railroad has also had Hot Switch Induction Switch Heater equipment installed and operational for the past 4 years. It is located in the Great Lakes Snow Belt region. The overall performance of this equipment was viewed to be superior to the Cal Rod and or Hot Air Blowers adjacent to the Hot Switch Equipment. This generated the desire to open a capital project by the Chief Engineer of Signals to do further evaluation on the overall energy consumption and heating performance of the Hot Switch Equipment. As a result, the railroad invested in electronic and mechanical metering instrumentation and outfitted two switches adjacent to each other at another site. These switches were convenient for 24 hour observation by railroad personnel.

The Magnetic Induction Equipment for this test incorporated 8 induction heads on each rail and two standard 4 foot Crib Heaters. The Switches involved were a #15 turnouts.

The Hot Air Blower was a standard Rails 3 HP unit.

With the heating systems in place and all instrumentation calibrated and zeroed, the test was ready for the winter heating season.

Typical Snow Event:

8 Degrees – 10 inches snow – 12 mph wind off of lake.

Typical sample period: 48 days

During the sample period, all switch heaters remained in joint operation as governed by the Dispatcher.

Hot Air Blower:

For a typical 48 day window, 213.2 gallons of propane was used at a rate of \$1.37 per gallon with 363 Kwh of electrical power consumed for the blower motor. The cost per Kwh was .085 or \$30.36. The combined total of energy used by the system was **\$322.45**. The average rail temp mid point of the switch was 110 degrees.

Hot Switch Induction System:

The induction driver cards were set at 800 watts per head and to pulse every 4 seconds in the power saving mode. This was typical of the hot switch equipment settings located at other sites. During the test interval, the average rail temperature maintained by the induction system was 240 degrees mid point of the switch. The Hot Switch Equipment primary voltage is 120VAC and the full load current at startup was less than 47 amps on the main buss.

For the 48 day window the Hot Switch unit used 877 Kwh at the rate of .085 cents per Kwh or **\$74.50** total.

Total Utility Energy Used:

Hot Air Blower (Rails 3 HP Unit): \$322.45

Verses:

Hot Switch Induction System: \$ 74.50

This represents a substantial annual savings on the railroads utility budget....

Cal Rod Unit:

The railroad indicated that the the utility usage was substantially higher than that of the Hot Air Blower System.

Summary:

As a result of this test, the railroad has stated that they felt that they could remove or shut off some of the induction heads to reduced the electrical load per system. It was a great advantage to know that the induction equipment had the higher power settings, should an extreme weather event accrue. Also, noted was that they can now power a switch heater system on the same power feed they typically have available at the Signal Bungalows along the Main Line Track.

Track maintenance personal stated that "The Hot Switch System was by far the easiest to maintain of all the systems, due to the way the Induction Heads remove from the rail and the Driver Cards are self-diagnosing smart cards.

All of this is made possible by the fact that any other switch heater technology utilize an outside heat source to push heat into into the rail. The Hot Switch System induces heat directly into the core of the rail which has no heat losses. The driver / coils are 98.9 % effective at placing heat right where you need it.

This equipment is the only Railroad Switch Heater System that will qualify for "Green Energy Tax Credits" on the market...

The Hot Switch Difference:

NORTH
Dakota | Commerce
Be Legendary.

May 25, 2023

Meagan Kunnanz
T & C Inc. dba Fiberglass Specialties
7600 Hwy. 2 E
Minot, ND 58701

Dear Meagan:

Thank you for your application for primary-sector certification by the North Dakota Department of Commerce, Economic Development & Finance Division. We have reviewed your application and determined that ED&F can certify your company, **T & C Inc. dba Fiberglass Specialties**, as primary sector and a new wealth creator in the economy of North Dakota. This certification is valid for **four years** (5/24/2023 to 5/24/2027).

Most of North Dakota's economic development programs, tools and incentives are targeted toward primary-sector clients. You may be requested to provide a copy of this primary-sector certification letter when you apply for certain economic development incentive and funding programs.

This certification does not guarantee the receipt of any North Dakota business incentive. For example, there are additional qualification criteria for the Seed Capital Investment and Agricultural Business Investment personal income tax credits, and it is critical that investments **NOT** be made prior to the business receiving certification for these two credits. If you are pursuing certification for investment tax credits and need to know the criteria required for qualification, contact David Lehman.

This certification is not the application process for the North Dakota New Jobs Training Program administered by Job Service North Dakota. To apply for the North Dakota New Jobs Training Program, you must contact Job Service North Dakota for the required application forms. Application forms for other programs that require primary sector certification are available from the agency administering the program.

Also, companies and individuals pursuing the investment tax credit incentive are reminded there is a cap on available dollars. Please visit with the ND Office of the Tax Commissioner regarding the remaining balance for investment tax credits. The credits are available on a first-come-first-serve basis until the law-defined cap is met.

North Dakota appreciates your contribution to the citizens and economy of our state. If there is anything further we can do to assist your company, please contact us at 701-328-5300.

Sincerely,



Richard Garman, Director
Economic Development & Finance Division

1600 E Century Avenue, Suite 6 | P.O. Box 2057 | Bismarck, ND 58502

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