

URGENT CALL FOR ACTION

JFE SHOJI POWER CANADA CALLS FOR GREATER GOVERNMENT INVESTMENTS IN ELECTRICAL TRANSFORMER MANUFACTURING



Worker assembling power transformer core at JFE Shoji Canada's manufacturing plant in Burlington, Ont.



In 2015, Canada joined 194 other countries in signing the Paris Agreement and pledging our commitment to combat climate change. However, despite Canada's attempts to be seen as a leader in sustainable growth, our continually rising greenhouse gas emission levels tell another story.

To achieve this goal, a transformational shift towards electrical energy is required. Modernizing the electrical grid to handle increased renewable energy inputs and to ensure reliability is estimated to require around **CAD 150 billion**. This includes electrical equipment like transformers, switchgear, and capacitors that no one ever hears or thinks about. Investment in new transformers is crucial for expanding the grid's capacity to handle increased electricity flow, especially as the grid doubles to accommodate electrification and renewable energy inputs.

Canada has also stated a goal of being a leader in the development and production of clean energy technologies, and for this to be a key strategic component in our economic plans. For us to fulfill this goal, we must take proactive action in building the supply chains for critical components of our plans.

A recent audit on Canada's progress toward the UN's Sustainable Development Goal on clean and affordable energy showed **little to no plans** to increase our electrical transformer production or to improve our electrical grid. If Canada is to meet its international obligations and goal of "achieving universal access to affordable, reliable, sustainable and clean energy for all by 2030", expanding our electrical grid and transformer capacity is *non-negotiable*.

The government's goals for 2030 are ambitious: saving 600 petajoules of energy annually through improved efficiency, and generating 90%, eventually 100%, of our electricity from renewable, non-emitting sources. With 2025 just two months away, the window for action is closing fast, leaving only five years to implement the necessary changes.

The government is heavily investing in the electric vehicle (EV) and clean energy sectors, including charging stations and battery production. With electricity demand expected to double in the next 25 years, however, and the 2030 deadline of this strategy rapidly approaching, the strain on our grid is of great concern. Federal initiatives are already in place for these sectors, despite having no significant plans to expand our grid. The focus on job creation and economic growth in this sector has overshadowed the more pressing issue at hand - **our dire need for large-scale investments in electrical infrastructure**.

More specifically, we are facing an increasingly urgent need to invest and expand in manufacturing efforts for a growing number of electrical components like transformers, as well as facing the challenge of ensuring their supply chains aren't at risk. If we fail to make these investments in a timely manner, our ability to efficiently transport electricity from power plants to end users will be severely compromised.

Ron Harper, President and CEO of JFE Shoji Power Canada, is leading the way in Ontario by calling on both industries and government officials to fortify the electrical grid and build resilient local supply chains for critical equipment, like transformers, that our power grid depends on.

Harper points out a rather pressing issue: "The demand for electricity is set to skyrocket, especially with the rise of data centers required to support our rapidly expanding AI infrastructure," he says. "There's a severe shortage within the supply chain for key materials necessary for electrical transformers, like the electrical steel needed for transformer production, and North America currently has only one producer."

Harper emphasizes the important role of electrical transformers in managing voltage changes for safe and efficient power transmission. However, he warns that over 70% of the transformers in North America are already past their originally intended replacement dates. As our transformers continue to age, the risk of failures and their catastrophic consequences increases dramatically.

When considering the anticipated doubling of our electricity usage within the next quarter century, Harper argues that our current efforts are only addressing part of the solution. Increased transformer production, along with replacing our old transformers and expanding their capacity, is imperative for our country to fulfill our energy demands and reach our goals by 2030.

Our reliance on foreign suppliers puts us in a tricky situation, though. If the key products and raw materials are not being produced domestically, we run the risk of other nations refusing to sell to us, having to pay exorbitant prices, or facing prolonged delivery times. Other risks include the possibility of foreign suppliers going out of business or being unable to deliver shipments due to geopolitical priorities and conflicts, natural disasters, or energy shortages.

Being well aware of this, Harper stresses the importance of local production. He reveals that over 70% of the electrical steel produced globally is currently being produced in China, Korea, and Japan. North America has one producer, along with a small producer in Brazil that doesn't require overseas shipping. To support North America's electrification, **we must** develop local supply chains for everything from raw materials to finished transformers.

To further highlight how pressing this issue is, the Conference Board of Canada warns that we are nearing a significant shortage of electrical transformers. This severely threatens North America's electrification efforts unless immediate action is taken.



Aerial view of JFE Shoji
Power Canada with
Burlington skyline in the
background



GEORG precisioncut TBA machine in operation

As this window begins to close on the opportunity to meet our broader net zero goals, JFE Shoji Power Canada is at the forefront of this challenge, working to increase awareness and pushing for expanded manufacturing capacity. Setting up new electrical steel manufacturing operations in North America could take 3-5 years, but Harper asserts it's a necessary investment. "We need new production facilities to build out our electrical grid," he says.

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Local manufacturing of transformers must be a central part of our clean energy economic development.
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Harper is actively lobbying the federal government to include electrical transformer manufacturing in the clean investment tax credits, to reduce our reliance on foreign suppliers and improve supply chain resilience. Such incentives could attract much-needed manufacturing to Canada and strengthen our energy infrastructure.

When discussing the potential for increased competition for JFE Shoji Power from these investments, Harper is clear: "The demand for electrical power and the supply chains that support the grid will be immense. Yes, more competition will come but expanding the supply chain is crucial - and it won't be accomplished by just one or two companies."

For decision-makers in industries that stand to be most affected by the shift to a net-zero economy, the time to lead is now. The stakes are simply too high to ignore this issue any longer; the current state of our electrical grid demands our immediate attention and investment. Every moment we put off addressing our aging transformers and the lack of local production capabilities is one moment closer to an energy crisis.

As we face this substantial challenge, we can be reassured and motivated by paraphrasing **The Six Million Dollar Man**: "We can rebuild [it]. We have the technology."

Improving and expanding our grid is not a problem we cannot solve. We have the technology, tools, and knowledge to fix our infrastructure, and we can rebuild it to be capable of supporting our clean energy demands. A challenge of this magnitude is something that requires everyone's support, though, **especially from the industries directly involved or affected by this.**

This is where your leadership comes in. With just five years left to meet our 2030 targets, the decisions made today by our industry leaders will have repercussions for decades. The actions taken during this time will be a significant drive in the changes we need to establish a foundation for sustainable growth and industry resilience.

This is not merely a call for participation. It's a rallying cry for those with influence to make a real difference. We need powerful leaders to push our government for stronger actions and to prioritize **local** manufacturing of essential components, like transformers. When powerful people lead, others will follow. Decisions made by those with authority can set new industry standards, which often results in a much broader collective effort towards positive change.

JFE Shoji Power Canada stresses an important final point: "Our grid is at a crossroads, and without immediate investment in electrical infrastructure and the supporting supply chains, the risk of operational disruptions and power shortages will only escalate. The technology to rebuild and strengthen our grid is within reach. What's needed now is bold leadership."



Will our society step up and meet this challenge? Or will we look back, knowing we had the chance to act, but chose not to? The future is ours to shape. If we act now, we have the power to overcome this challenge and build a stronger, more sustainable future for everyone.



Canada's energy future depends on a stronger, more reliable grid, and JFE Shoji is leading the charge, but we need your help in advocating for smarter infrastructure and renewable energy solutions.



Visit jfeshojipower.com to learn more about our work and how you can take action.

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