

Evaluating Ontario's Electricity Options

Beyond Levelized Cost of Electricity (LCOE)

Insights from OWA's commissioned analysis of electricity generation options



HATCH

As Ontario plans for significant electricity demand growth:

“With electrification-driven load growth and new large-load industries such as data centres coming online, hydropower will continue to play a critical role in enabling economic growth while maintaining the affordability, reliability, and sustainability of our grid. It also provides opportunities for meaningful engagement with First Nations communities and their participation in Ontario’s electricity sector.”

– Robby Sohi

Chief Operating Officer & Executive Vice President, Markets and Reliability
Ontario’s Independent Electricity System Operator (IESO)



ABOUT THE OWA

The Ontario Waterpower Association (OWA) is a not-for-profit, member-based organization promoting the sustainable development of waterpower resources in Ontario. Since 2001, the OWA has been representing the common and collective interests of the waterpower industry.

To date, membership has grown to over 160 organizations. Membership includes generators, engineering firms, environmental consultants, equipment suppliers, manufacturers, legal, project financing and insurance firms, Indigenous communities, and other organizations, all sharing the common interest of advancing waterpower in Ontario.

ABOUT THE ANALYSIS

Ontario is entering a period of generational electricity investment, with projected demand growth of approximately 75% over the next 25 years. As new generation resources compete for procurement opportunities, evaluation frameworks are often anchored primarily in simplistic cost-per-megawatt-hour comparisons.

As outlined in Ontario's Integrated Energy Plan and supported by Bill 40 (Protect Ontario by Securing Affordable Energy for Generations Act, 2025), electricity policy decisions increasingly reflect broader considerations, including system reliability, economic development, Indigenous participation, supply chain security, and environmental performance, OWA commissioned an independent Multi-Criteria Analysis of Ontario’s electricity generation options to explore how these dimensions can be assessed together in a structured and transparent way.

4 STRATEGIC TAKEAWAYS

1

Cost Alone Is an Incomplete Lens

Electricity decisions should consider overall system value, not just price per megawatt-hour.

2

Electricity Has Multiple System Values

Reliability, controllability, and long-term infrastructure performance materially affect how resources support the grid.

3

There Are Considerations Beyond Electricity

Electricity policy increasingly reflects broader priorities such as economic development, Indigenous participation, and domestic supply chains.

4

There Is a Structured Way to Bring This Together

A transparent evaluation framework can integrate cost, system performance, and policy objectives in a clear and balanced way.

SUMMARY

This framework is intended to enhance how value is assessed in electricity planning. It does not advocate for a specific technology or replace existing processes. Rather, it offers a structured way to support and strengthen the direction Ontario is already taking.

Figure 1: Evaluation Framework Hierarchy: Criteria for Comparative Benefit Assessment

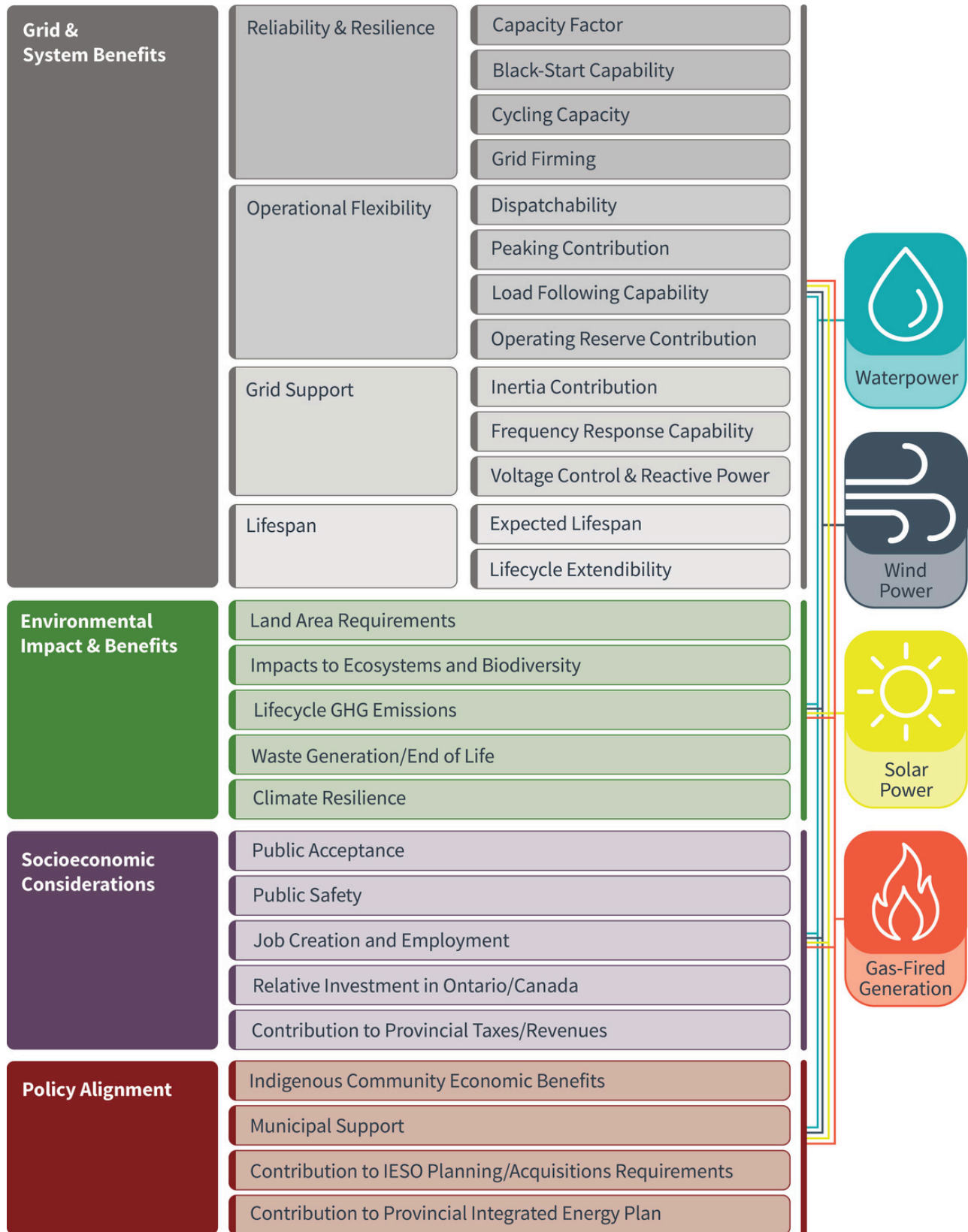
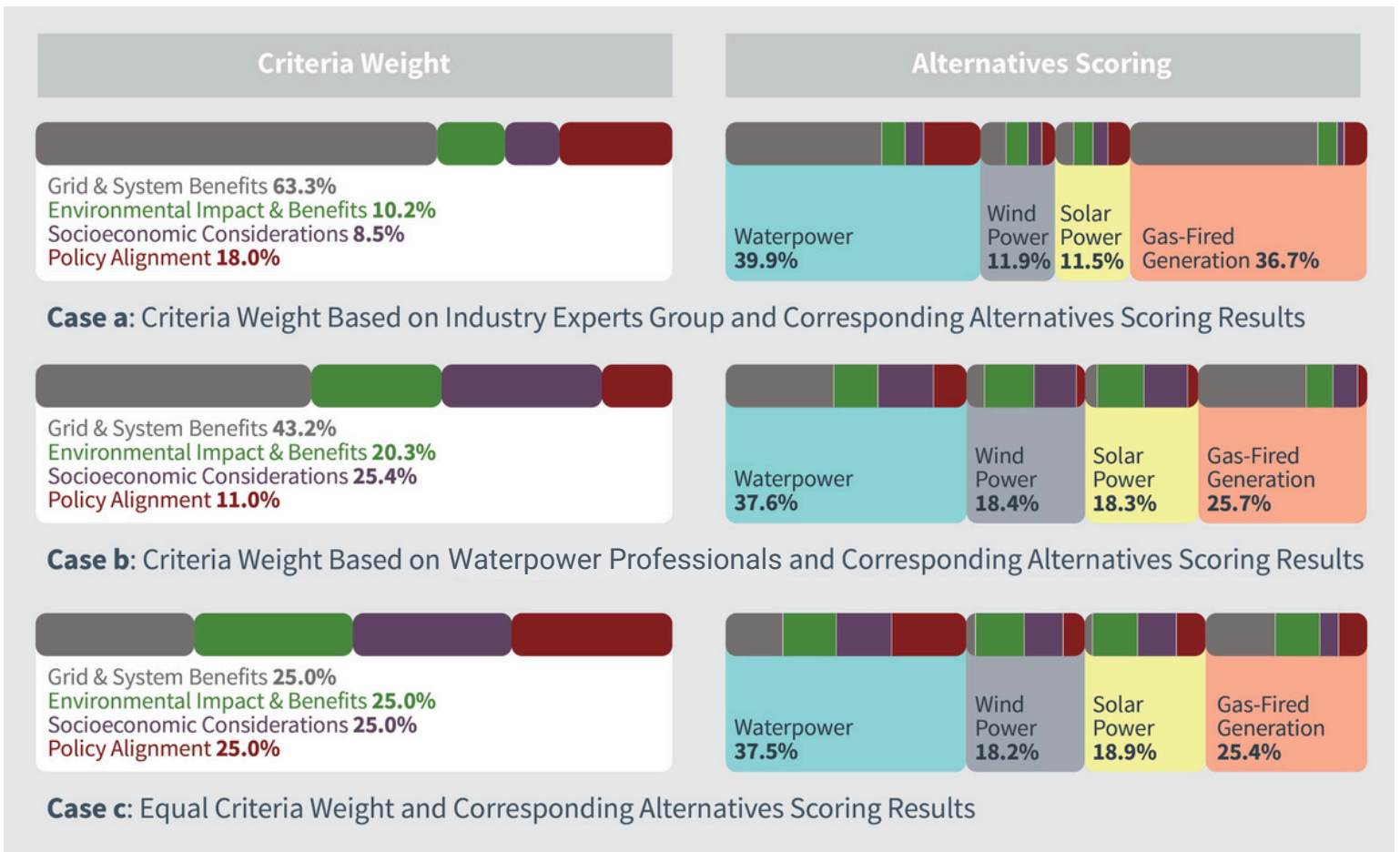
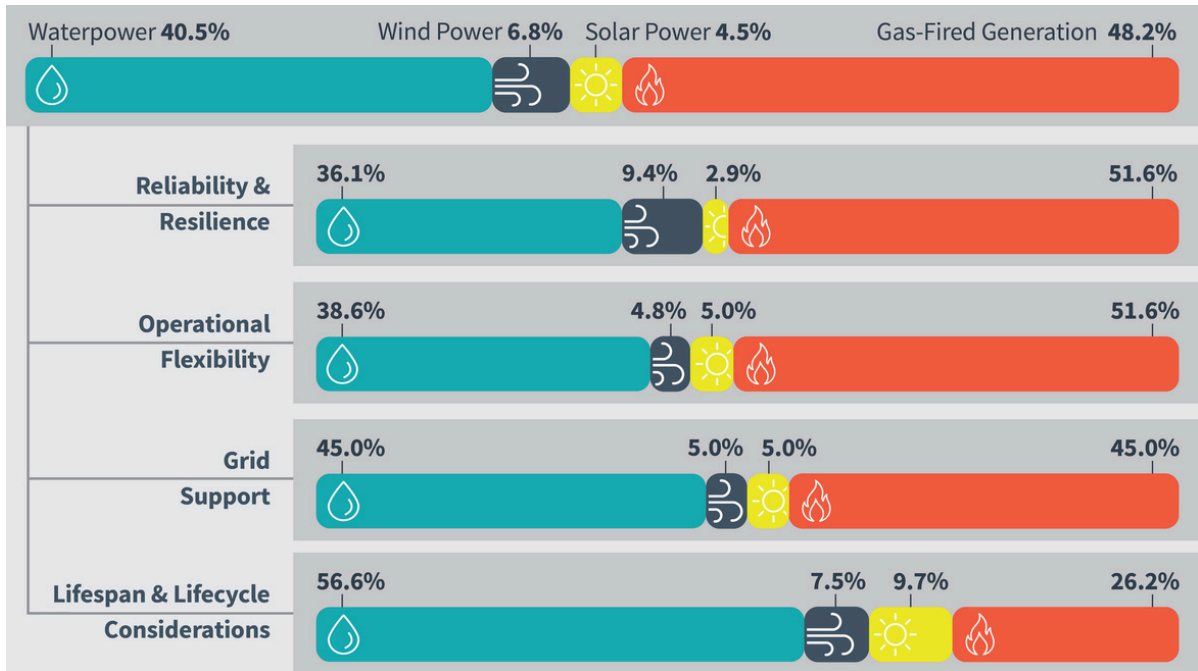


Figure 2: Overall Results Based on the Response from Energy Industry Experts, Waterpower Professionals, and Criteria Weightings with Equal Value (25% each)



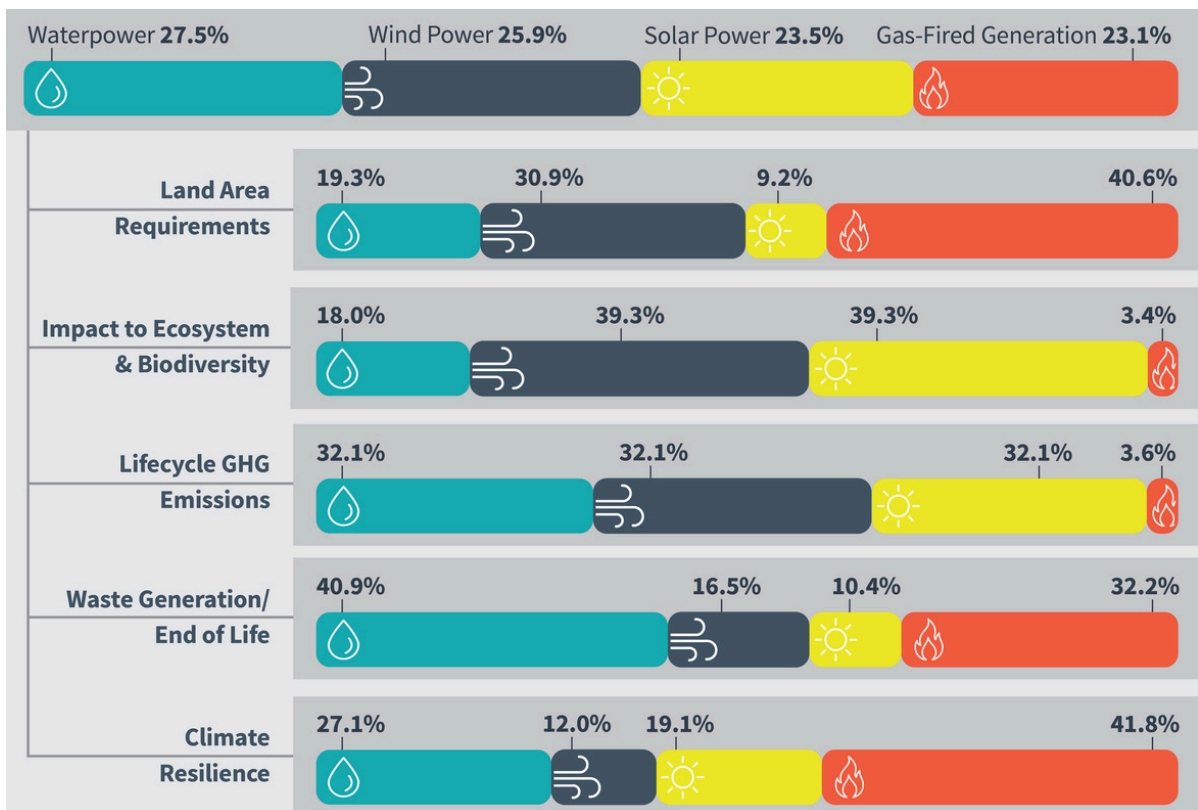
Grid and System Benefits

Figure 3: Breakdown of the Alternatives Scoring with Respect to Grid and System Benefits



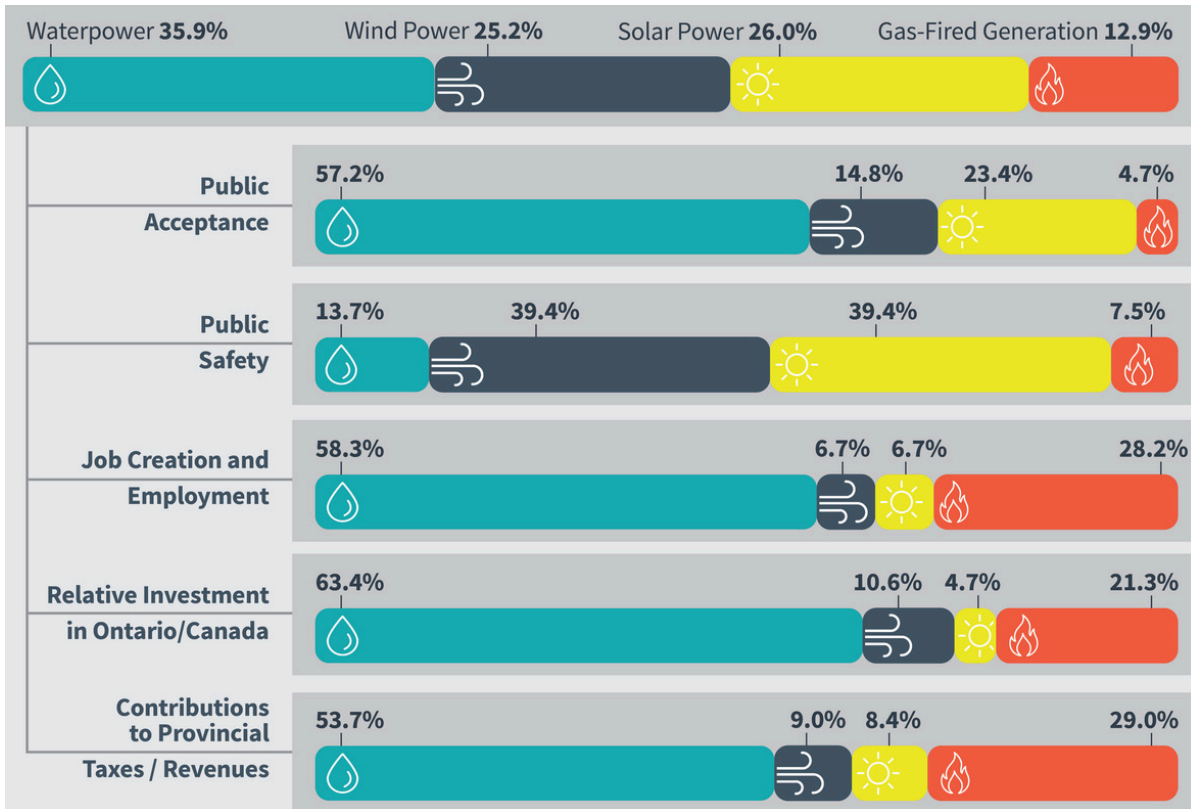
Environmental Performance

Figure 4: Breakdown of Alternatives Scoring with Respect to Environmental Performance



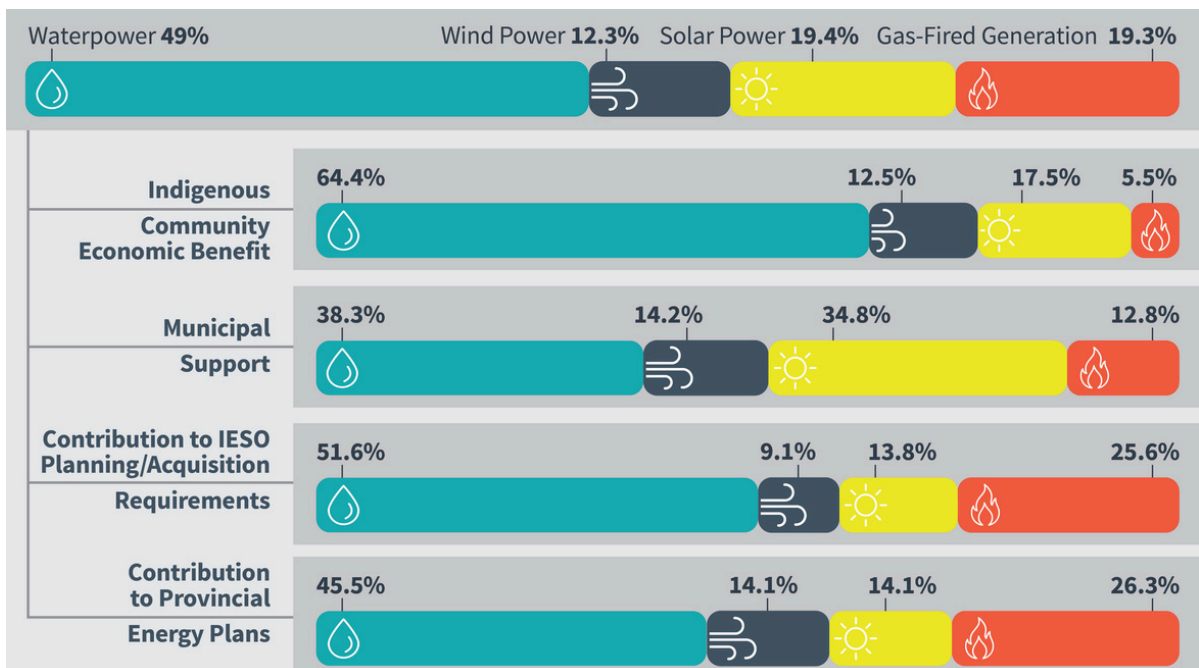
Socioeconomic Considerations

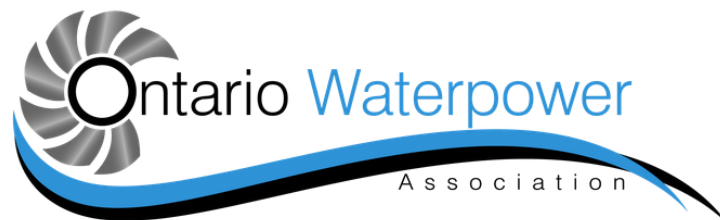
Figure 5: Breakdown of Alternatives Scoring with Respect to Socioeconomic Considerations



Policy Considerations

Figure 6: Breakdown of the Alternatives Scoring with Respect to Policy Considerations





Accelerating Ontario's Electrification

Unit 5 - 550 Braidwood Ave., Peterborough ON K9J 1W1
www.owa.ca info@owa.ca