

## Cost of Transmission Upgrades

On June 2, 2009, the Alberta Electric System Operator (AESO) filed its Long-term Transmission System Plan (the Plan) with the Alberta Utilities Commission (AUC). The Plan identifies transmission system developments required in the next 10 years in order to meet the future electricity needs of Albertans.

In the Plan, the AESO has identified five key transmission upgrading projects referred to as Critical Transmission Infrastructure (CTI) projects. These projects are essential to strengthening the transmission system's reliability, increasing its efficiency and allowing renewable sources of electricity to connect to the grid.

Since the release of the Plan, several cost estimates from many different sources have been reported. This fact sheet is intended to provide clarity around the conflicting and confusing information about the costs of the proposed transmission system upgrades in Alberta.

### CRITICAL TRANSMISSION INFRASTRUCTURE (CTI) PROJECTS COVERED UNDER PROPOSED BILL 50 LEGISLATION

The Government of Alberta's proposed Bill 50 legislation considers four transmission upgrading projects that the AESO has identified in the Plan as Critical Transmission Infrastructure (CTI-Tier 1). The AESO estimates these four projects will cost approximately \$5.6 billion.

Critical Transmission Infrastructure (CTI) Projects Covered Under Proposed Bill 50 Legislation	Estimated Cost (2008 millions)
Edmonton to Calgary transmission system reinforcements	\$3,135
Heartland transmission system reinforcements	\$387
Fort McMurray transmission system reinforcements	\$2,045
South Calgary transmission system reinforcements	\$100
<b>Total</b>	<b>\$5,667</b>

### Impact to Consumers

If all four proposed Bill 50 projects described above proceed from construction to completion, the AESO estimates that the transmission cost portion of an average residential consumer's bill will increase incrementally by about \$6 per month by 2017. In other words, residential consumers can expect an increase of about \$1 per month for every \$1 billion spent on these four transmission system reinforcements.

## CRITICAL TRANSMISSION INFRASTRUCTURE (CTI) PROJECTS

Five projects have been identified in the Plan as CTI-Tier 1. These include the four projects covered under the proposed Bill 50 legislation, as well as additional projects worth approximately \$2.5 billion to integrate wind energy from the southern part of the province, and redistribute power in and around Calgary (Foothills Area Transmission Development or FATD). The Southern Alberta Transmission Reinforcement (SATR) will integrate up to 2,700 MW of additional wind energy into the transmission grid. The AESO submitted a Needs Identification Document for this project to the AUC for review on December 30, 2008. It was approved by the AUC on September 8, 2009.

The estimated costs for these five projects are approximately \$8.1 billion.

CTI-Tier 1 Projects	Estimated Cost (2008 millions)
Proposed Bill 50 projects	\$5,667
Southern Alberta (wind) transmission system reinforcements*	\$2,454
<b>Total</b>	<b>\$8,121</b>

\* FATD - \$624 million and SATR - \$1.83 billion (SATR approved by the AUC)

### Impact to Consumers

If all five CTI-Tier 1 projects identified in the AESO's Long-term Transmission System Plan are completed, the estimated transmission cost portion of an average residential consumer's bill will increase by about \$8 per month by 2017. This represents an expected increase of about \$1 per month for every \$1 billion spent on these five projects.

## TOTAL TRANSMISSION SYSTEM DEVELOPMENTS

Beyond the CTI projects, the AESO has identified other potential projects that may or may not proceed depending on future events. These include potential transmission required to interconnect renewable and low-emission energy sources. The AESO has completed comprehensive technical analysis of regional transmission system requirements and recommends a total investment of approximately \$14.5 billion in the next 10-year period for upgrades throughout the province. This estimate includes \$8.1 billion for the five CTI-Tier 1 projects described above. However, many of the long-term transmission projects are still in the review and planning stages, and have not been proposed or approved.

### Alberta Electric System Operator

2500, 330 - 5th Avenue SW  
 Calgary, Alberta T2P 0L4  
 t 403-539-2450  
 f 403-539-2949

[www.aeso.ca](http://www.aeso.ca)

Total Transmission Reinforcement Projects	Estimated Cost (2008 millions)
CTI-Tier 1 projects	\$8,121
Transmission to renewable and low-emission energy zones	\$1,900
Bulk transmission projects currently underway	\$570
Long-term regional transmission projects	\$3,872
<b>Total</b>	<b>\$14,463</b>

### **Impact to Consumers**

If all projects identified in the AESO's Long-term Transmission System Plan are completed, the estimated transmission cost portion of an average residential consumer's bill will increase by about \$12 per month by 2017. This represents an expected increase of less than \$0.85 per month for every \$1 billion spent.

### **HOW WILL TRANSMISSION CHARGES AFFECT ALBERTANS?**

The following table\* outlines the anticipated costs of transmission charges on an average residential customer's monthly electricity bill for CTI projects.

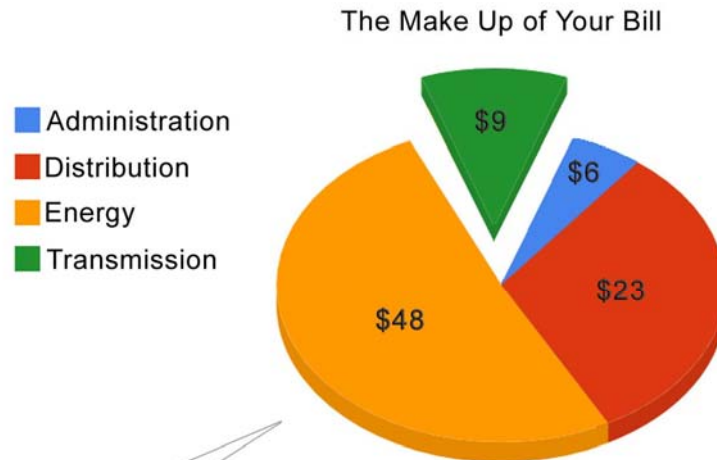
Year	Bill 50 Projects (\$5.6 billion)	CTI-Tier 1 Projects (\$8.1 billion)	Total Transmission Development (\$14.5 billion)
2009	\$9	\$9	\$9
2010	\$9	\$9	\$10
2011	\$9	\$9	\$11
2012	\$9	\$10	\$12
2013	\$12	\$13	\$15
2014	\$14	\$15	\$17
2015	\$14	\$16	\$18
2016	\$14	\$16	\$19
2017	\$14	\$16	\$21

\* Estimates in this table have been rounded to the nearest dollar and updated to reflect timeline changes for the construction and completion of new transmission lines, inclusion of 2008-2011 expenditures, and a decrease in assumed future transmission system demand in order to exclude customers who will consume generation they produce themselves (also known as behind-the-fence load). The impact of these revisions on transmission charges is minimal for Bill 50 and CTI-Tier 1 projects. For Total Transmission Development projects, transmission charges increase slightly year over year, but the estimated increase in transmission charges by 2017 remains at about \$12 per month for residential customers.

## WHO PAYS FOR TRANSMISSION?

All Alberta consumers pay for existing transmission and transmission upgrades and expansions according to their use of the system. Industrial and commercial consumers cover the largest portion of the costs – about 80% combined – since these groups use most of the electricity moved over the grid. Residential consumers pay only about 16% of these costs, while farms make up the remainder at 4%.

Residential consumers' electricity bills include charges for more than just the cost of electricity. There are also charges for administration, distribution and transmission. Transmission charges on residential bills represent only about 10% of the total costs.



While the AESO weighs costs of transmission judiciously, the AESO must also ensure that the wholesale price of electricity is determined as competitively as possible. The AESO is committed to planning a transmission system that is designed to ensure reliability while at the same time fostering competition among generators (on behalf of consumers) within a deregulated Alberta market.

### Alberta Electric System Operator

2500, 330 - 5th Avenue SW  
Calgary, Alberta T2P 0L4  
t 403-539-2450  
f 403-539-2949

[www.aeso.ca](http://www.aeso.ca)