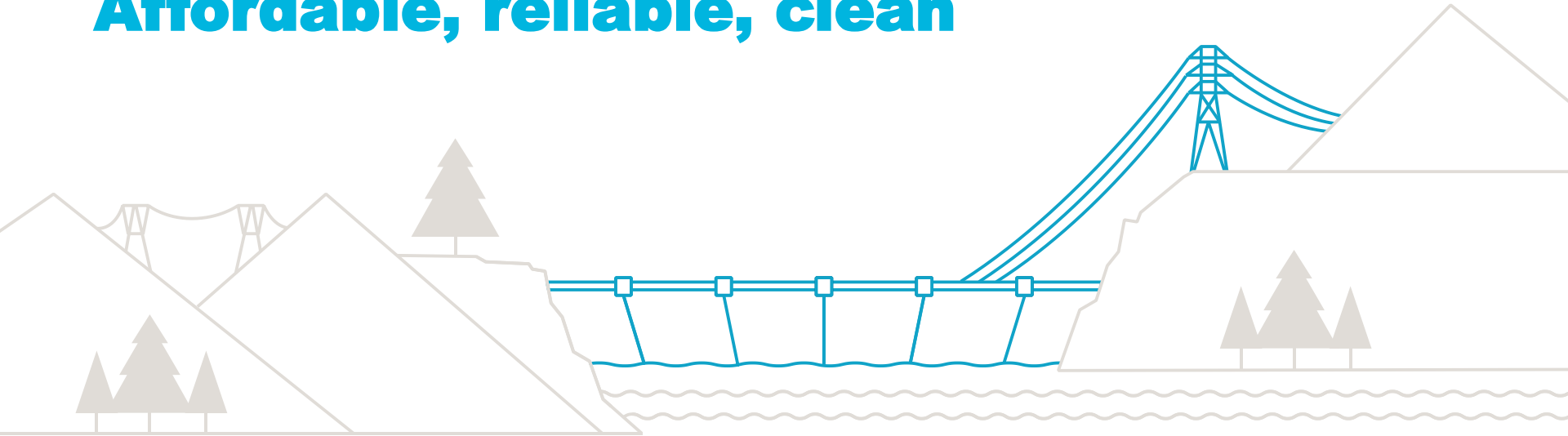


# Protecting B.C.'s energy advantage

Affordable, reliable, clean



# BC Hydro's system

We have a large and complex system serving 95% of the province's population and 4 million customers.



**1 million**  
utility poles



**30** hydroelectric  
generating  
stations



**over 300**  
substations



**325,000**  
individual transformers

**4 million customers**



A network of over  
**77,000 kms**  
of transmission and distribution lines

# BC Hydro today

BC Hydro is here to deliver affordable, reliable, clean electricity to our customers, safely.

# Affordable, reliable, clean

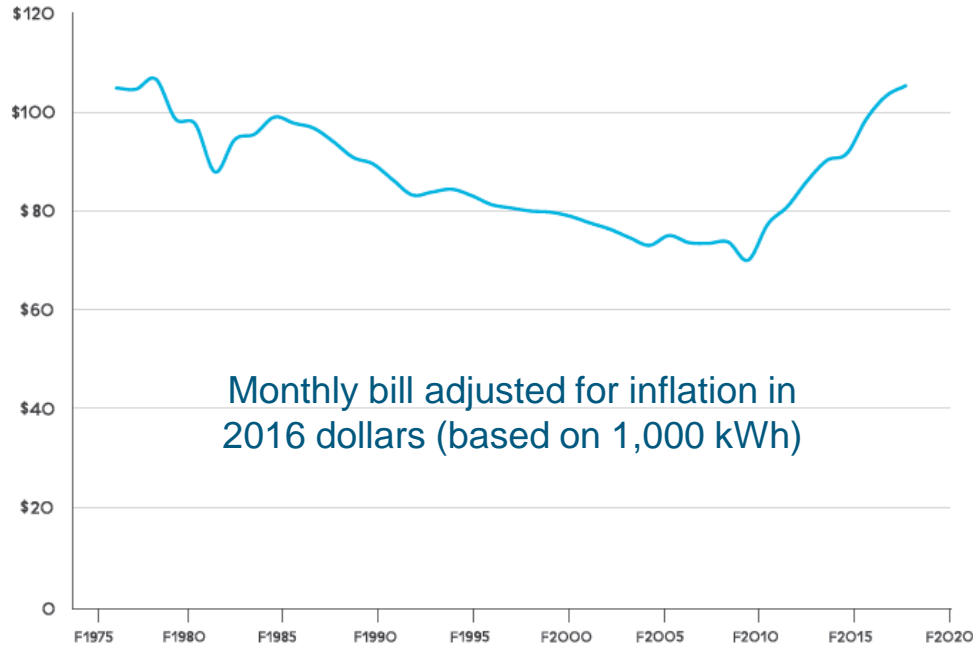
Our rates are among the lowest in North America.

An average residential customer pays  
**\$203** each month for their **phone, TV,  
and internet services**, compared to  
**\$91** per month on **electricity**.

\*based on 830 kWh/month

# Affordable, reliable, clean

Adjusting for inflation, electricity costs about the same today as it did back in 1976.



## Inflation-adjusted average monthly residential bills

1976	\$104.55
2016	\$107.05

# Affordable, reliable, clean

Last year, 98% of the electricity generated in B.C. was from clean or renewable sources.



**We're doing everything  
we can to keep rates  
low for our customers**

# Warm winter reduced energy sales

## Ski hills in Alberta, B.C. suffering from unusually warm weather

Mountain resorts across Western Canada are struggling to provide good snow for skiers, snowboarders

By Kyle Bakx, CBC News | Posted: Feb 17, 2015 7:00 PM ET | Last Updated: Feb 18, 2015 10:33 AM ET

## IN DEPTH | El Niño forecasts warm winter for West Coast

A strong El Niño means warmer than normal trend continues — but what does that mean for skiers?

By Johanna Wagstaffe, CBC News | Posted: Oct 22, 2015 1:19 PM PT | Last Updated: Oct 24, 2015 1:59 PM PT

## Drought forces Howe Sound pulp mill to close one operation in hopes of saving two others

THE CANADIAN PRESS | JULY 24, 2015

### Warm winter causes headaches for seasonal businesses

**JACOB SEREBRIN**

Special to The Globe and Mail

Published Monday, Feb. 29, 2016 5:00AM EST

Last updated Monday, Feb. 29, 2016 12:07PM EST



# Commodity prices reduced forecasts

## Natural Gas

	2013	2016	% Change
Gas (\$/mmBtu)	2.8	2.1	↓24%
LNG (\$/mmBtu)	16.2	8.4	↓48%

## Mining

	2013	2016	% Change
Coal (metallurgical) (\$/mt)	130	68	↓48%
Copper (\$/lb)	3.6	2.2	↓39%

## Pulp & Paper

	2013	2016	% Change
Kraft pulp (\$/tonne)	660	610	↓8%
Thermo-mechanical pulp (\$/tonne)	550	380	↓31%
Paper, newsprint (\$/tonne)	640	520	↓19%
Lumber (\$/m fbm)	300	280	↓7%

Forecasting approximately **\$3.5 billion (or 7%) less revenue** over the duration of the 10 Year Rates Plan compared to the assumptions at the time the plan was announced in 2013.

# Staying on track

## Continuing to find operational savings that are reinvested in priority areas.

- ✓ This year, we've identified a further **\$33 million** in cost reductions.
- ✓ We've limited base operating cost increases to an average of **only 1.2% per year** for 2017 to 2019.

## Locking in low interest rates.

- ✓ We've put in place a debt management strategy to lock in low interest rates, which we expect will achieve approximately **\$45 million** in savings over the next three years.

# Staying on track

## Working hard to manage our costs.

- ✓ We've replaced contractors with internal staff where it reduces costs, generating an overall capital savings of **\$20 million** over the next three years.
- ✓ We've re-prioritized our capital spending, reducing planned expenditures by about **\$380 million** over the next 3 years.
- ✓ We've updated our conservation programs, reducing the average program cost to **\$22 per megawatt hour**.

# Staying on track

## Optimizing our energy resources.

- ✓ We're renewing contracts with independent power producers at **prices less** than what they are currently paid, recognizing that those producers have typically recovered most of their capital costs over their original contract terms.
- ✓ We're reviewing the Standing Offer Program to reflect the **declining cost** of new power technology and to better meet system needs.

# Staying on track

## Spending money where it matters most.

- Over the next three years, we're redeploying operational savings in the following priority areas:
  - ✓ Safety
  - ✓ Customer service
  - ✓ Storm response
  - ✓ Maintenance
  - ✓ Capital project planning

# **2013 10 Year Rates Plan update**

**We're on track to meet the targets in the 2013 10 Year Rates Plan, while making investments to safely provide reliable, clean electricity to our customers.**

# 10 Year Rates Plan

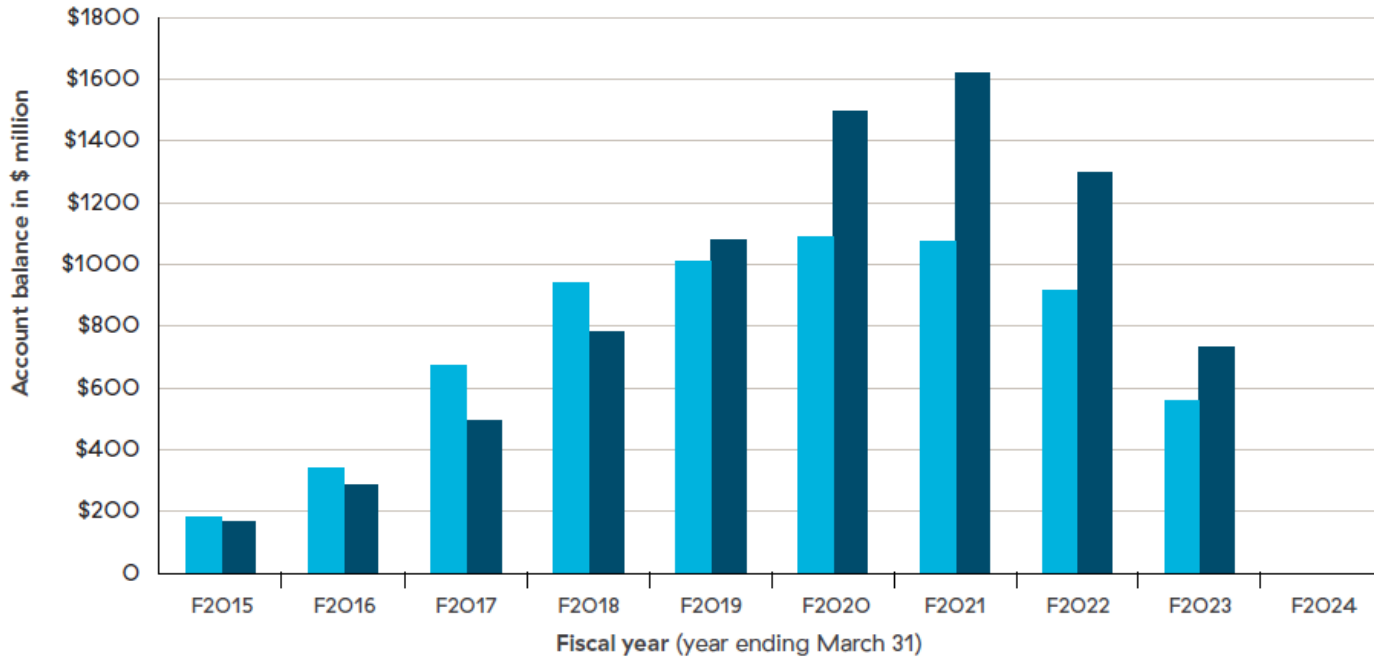
- The plan targets average rate increases of 2.6% in the last 5 years:

	Set by Government			Capped		Targets (to be set by the BC Utilities Commission)				
Year	F2015	F2016	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024
Increase	9%	6%	4%	3.5%	3%	2.6%	2.6%	2.6%	2.6%	2.6%

- This includes full recovery of the balance in the Rate Smoothing Account (which shifts costs from earlier years to later years of the 10 Year Rates Plan):

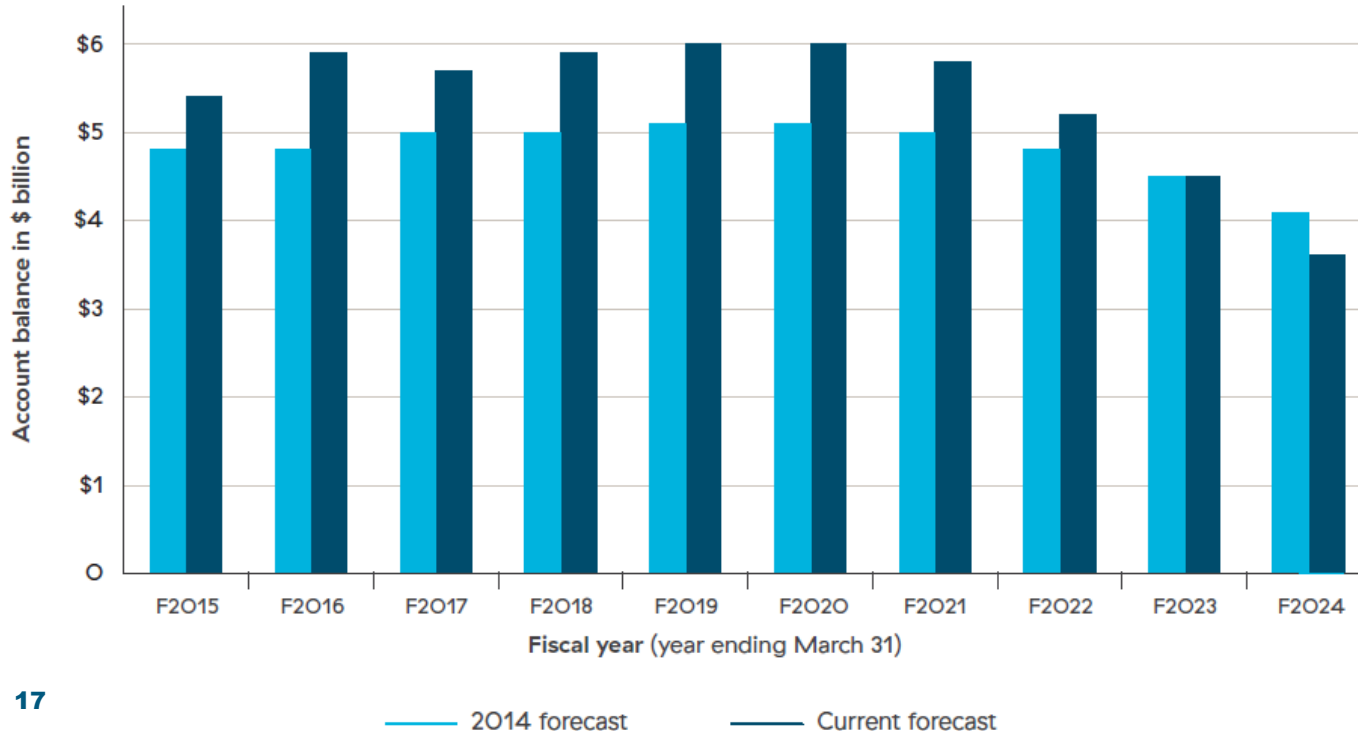
Rate Smoothing Account – (Additions) / Recoveries in millions											
Year	F2015	F2016	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024	Total
Original Forecast	(181)	(158)	(333)	(268)	(70)	(78)	13	161	354	560	0
Latest Forecast	(166)	(121)	(210)	(286)	(299)	(408)	(99)	304	553	733	0

# Rate Smoothing Account balance is on track to reach zero by 2024

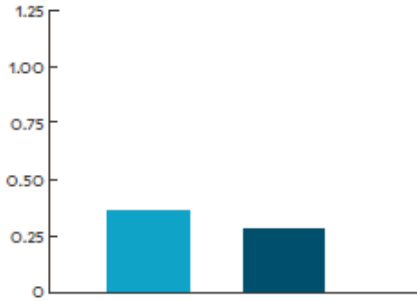




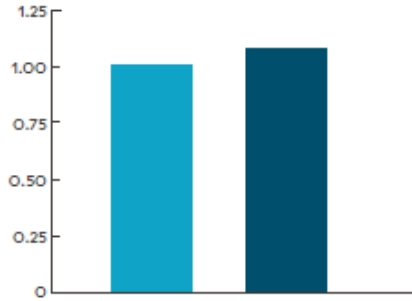
# We're paying down regulatory accounts by almost 40% by 2024



# F16



# F19

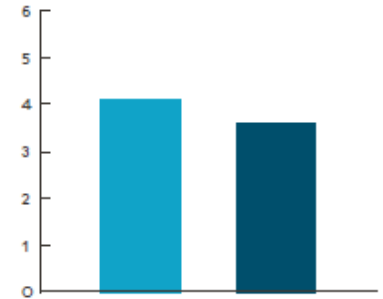
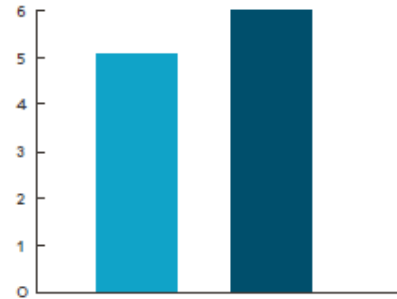
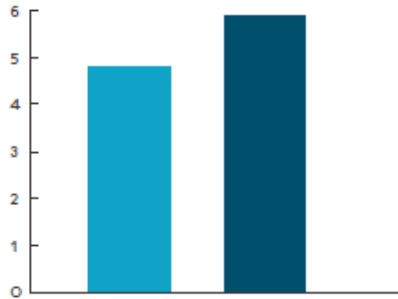


# F24



Original 10 Year Rates Plan forecast      Current forecast

Total regulatory account balance (in billion dollars)



2014 forecast      Current forecast

# A 4% rate increase means...



**\$4.65**

extra per month  
for a family of four  
living in a single-family  
detached home.



**\$1.37**

extra per month  
for a single person  
living in an apartment.



**\$2.88**

extra per month  
for a couple  
living in a townhouse.

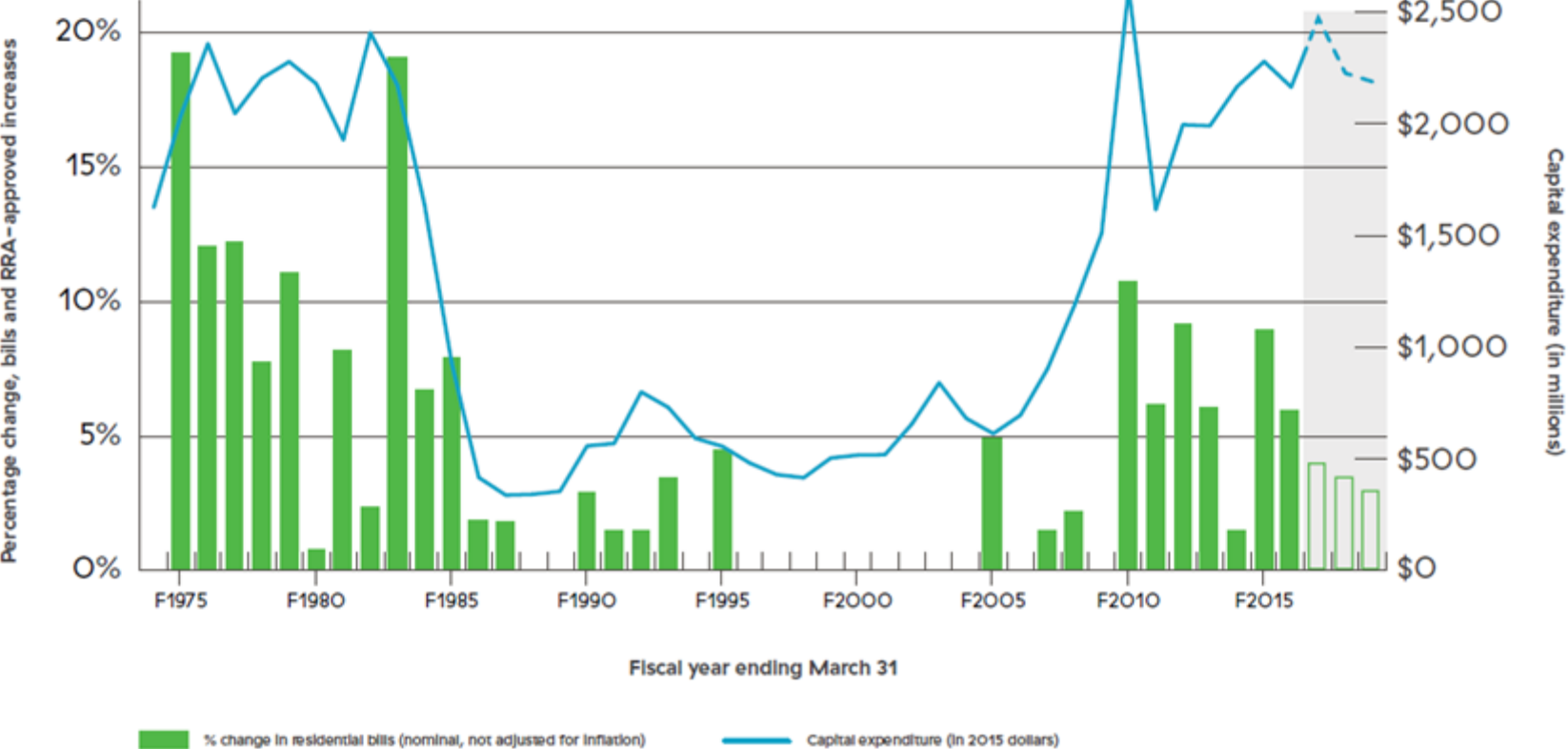
# Investing in our system to keep it reliable and clean

As our province grows, further investment is needed to meet growing demand and ensure reliable power for years to come.

We are investing over \$2 billion per year to upgrade aging assets and build new infrastructure.

Over the past 5 years, we've completed 563 capital projects at a total cost of \$6.48 billion which is about \$12 million under budget overall.

# Residential bill increases and capital expenditures (1973 to 2018)



**Our hydroelectric assets are over  
45 years old on average.**



**Over 400,000 transmission and distribution assets need remediation or replacement within the next 10 years.**

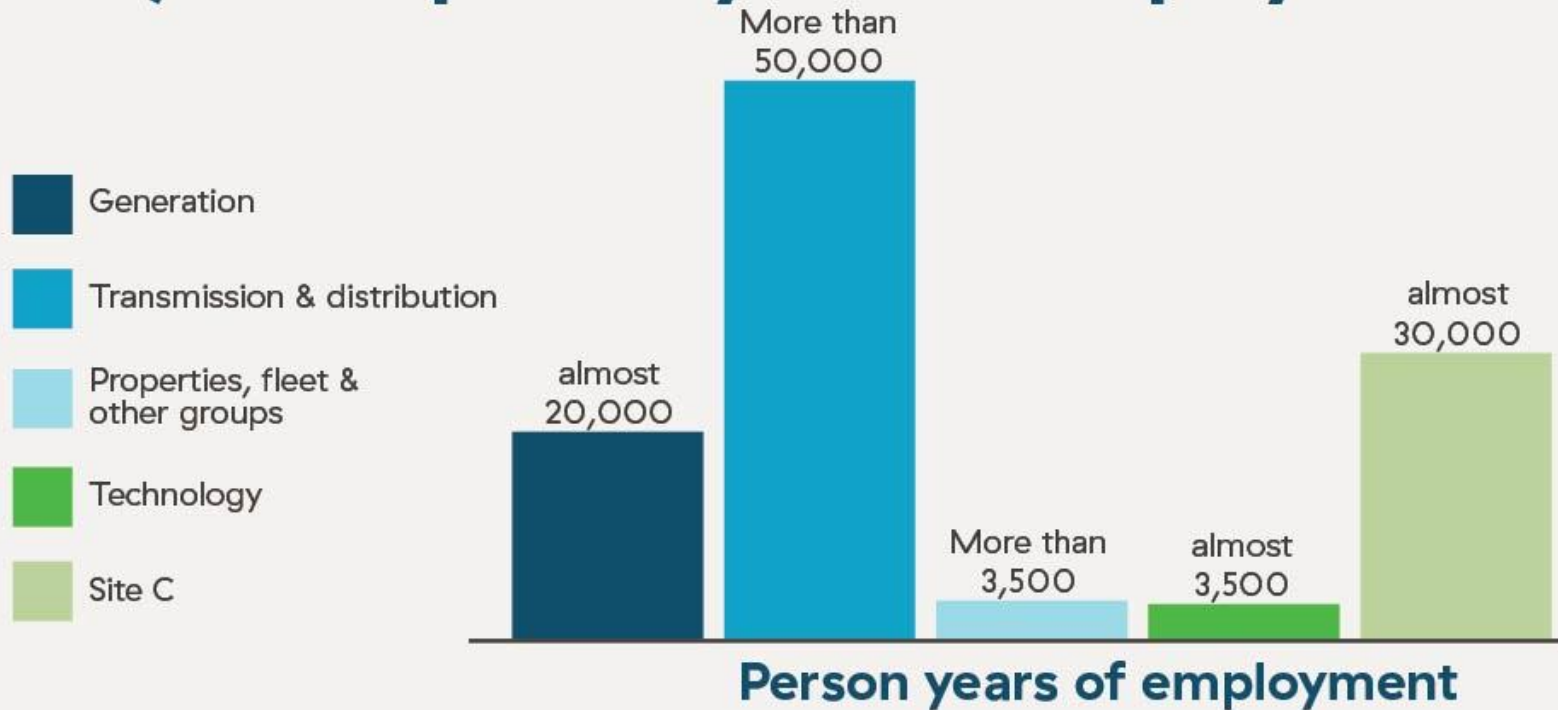


**Lower Mainland, Dawson Creek, Kamloops  
and other areas are experiencing  
substantial growth.**



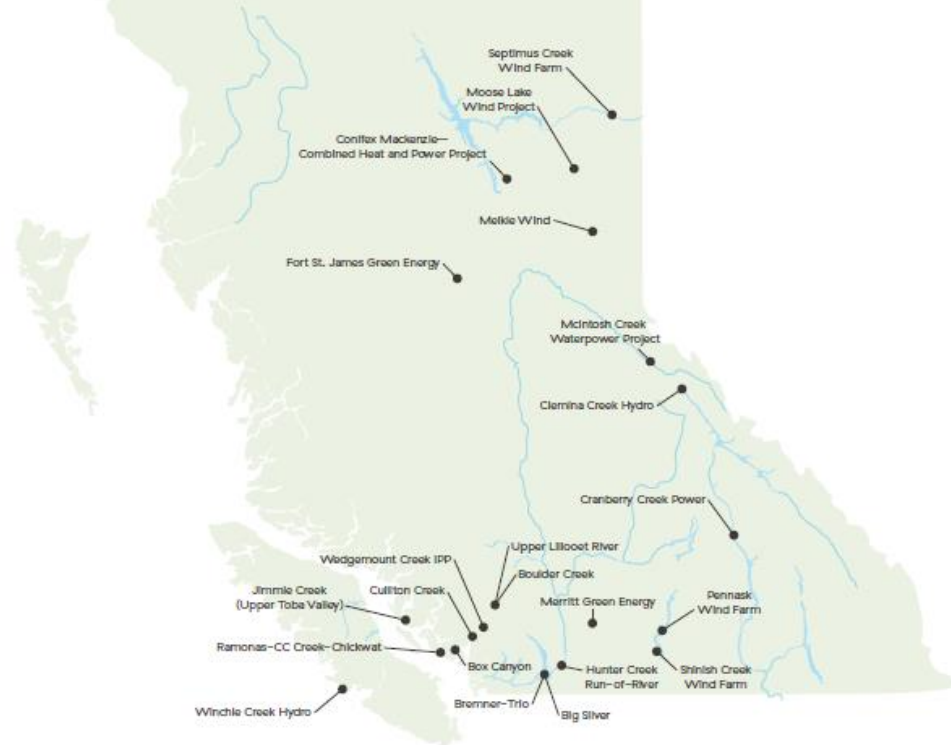


# 100,000+ person years of employment



# Over 20 new clean power projects will be completed in the next three years

Independent Power Producers provide about 25% of supply.



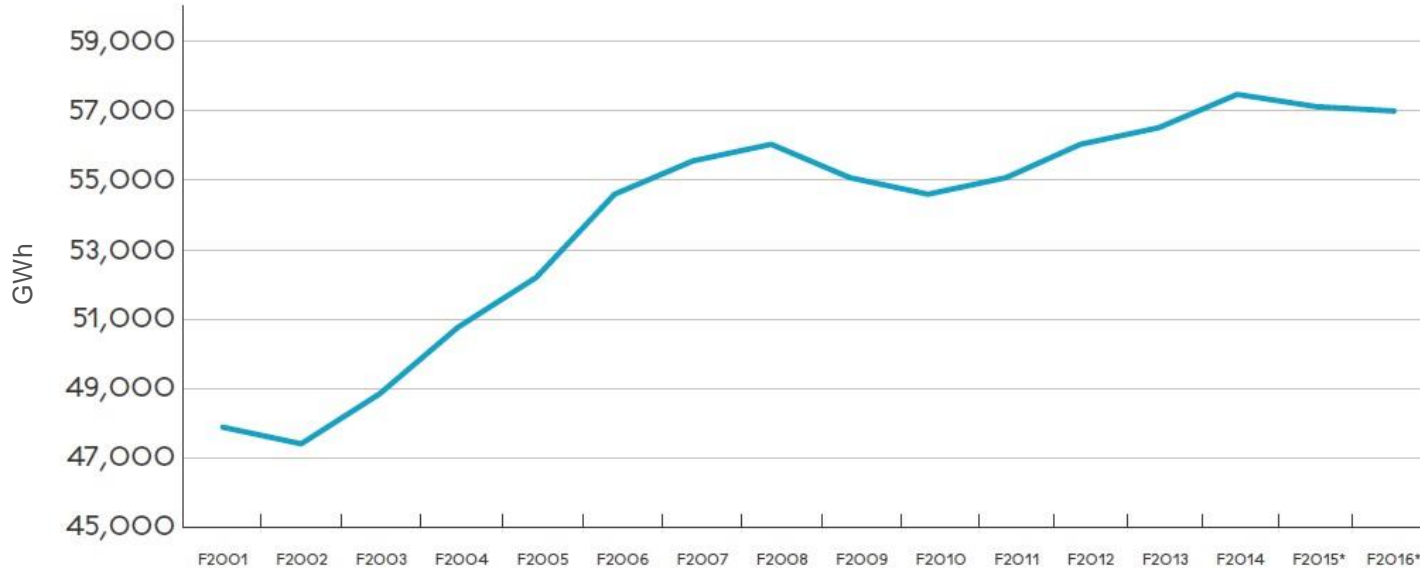
# Meeting long-term growth

The 2013 Integrated Resource Plan forecasted demand growth of 40% over the next 20 years, before LNG.

With the shift in commodity markets since 2013, BC Hydro is now forecasting growth of 34% before LNG and 39% with LNG.

This means an average growth rate of 1.4% per year, after conservation.

# Energy sales since 2001

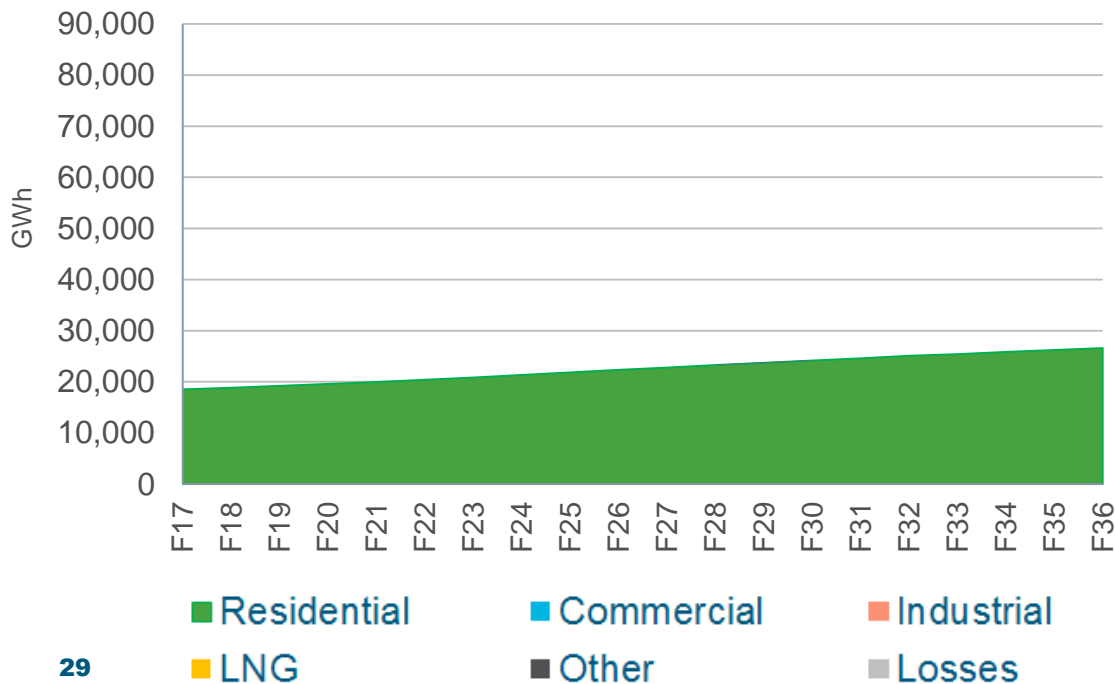


Fiscal year (ending March 31)

— Energy sales, weather-adjusted and without demand-side management  
\*F2015 and F2016 are not weather-adjusted

# Demand is growing – residential

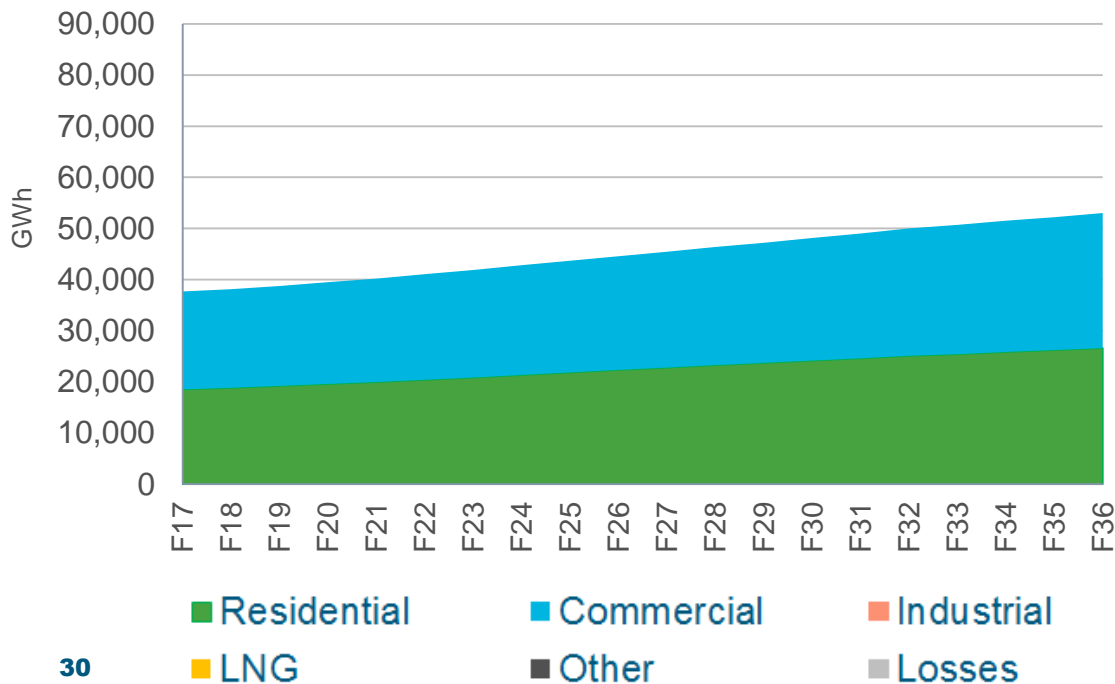
We continue to forecast significant long-term growth for all customer sectors.



- B.C.'s population is forecast to grow by over **1 million people** to 5.8 million by 2035.
- Declining trend in residential use per account due to gains in appliance efficiency has softened sales.

# Demand is growing – commercial

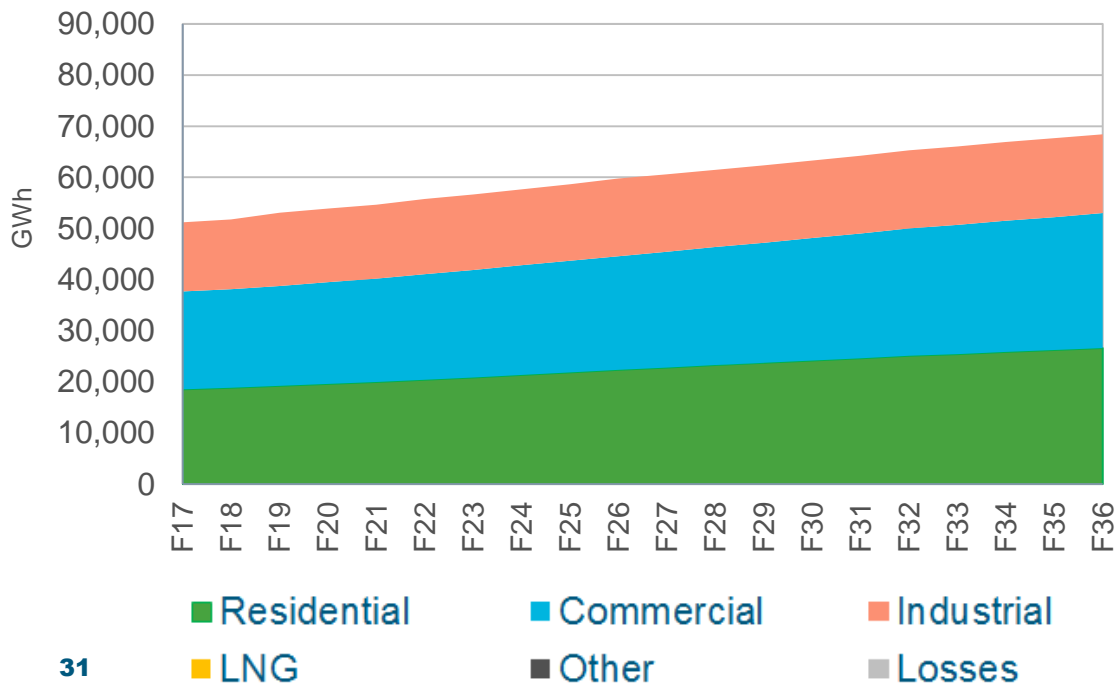
We continue to forecast significant long-term growth for all customer sectors.



- B.C.'s GDP growth is forecast at a lower rate than in 2013, but still expected to lead the country at 2.3% on average, from 2017 to 2019.

# Demand is growing – industrial

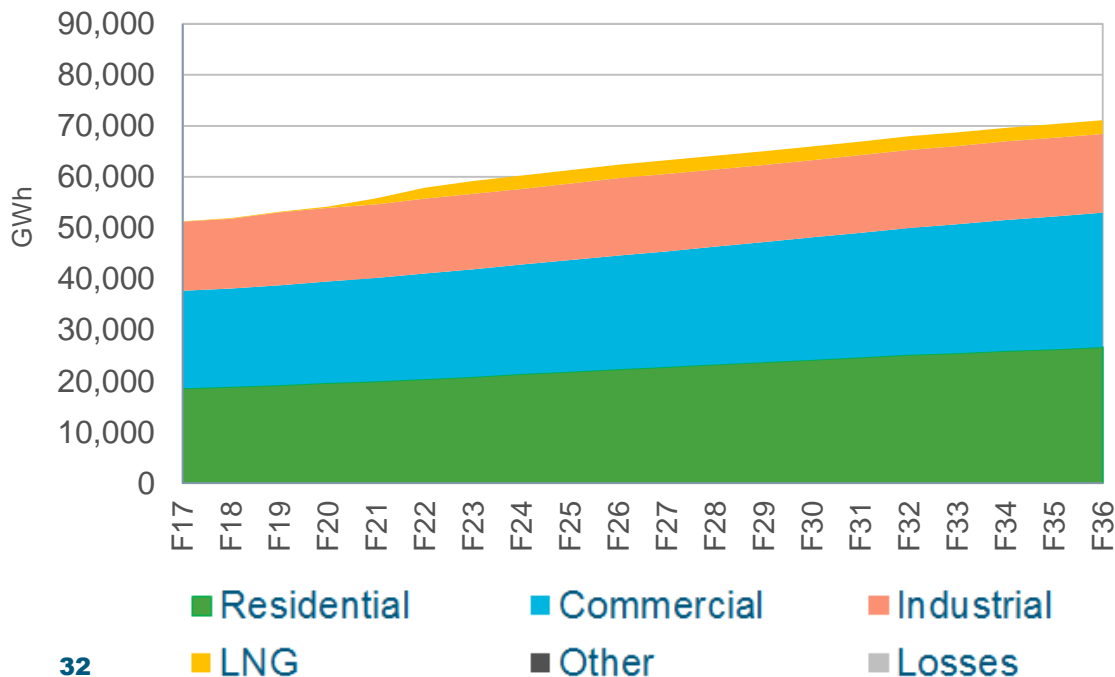
We continue to forecast significant long-term growth for all customer sectors.



- Declining commodity prices have led to a lower forecast rate of industrial load growth.
- Average annual year over year industrial load growth over the next 20 years is about 1.3%\*.

# Demand is growing – LNG

We continue to forecast significant long-term growth for all customer sectors.

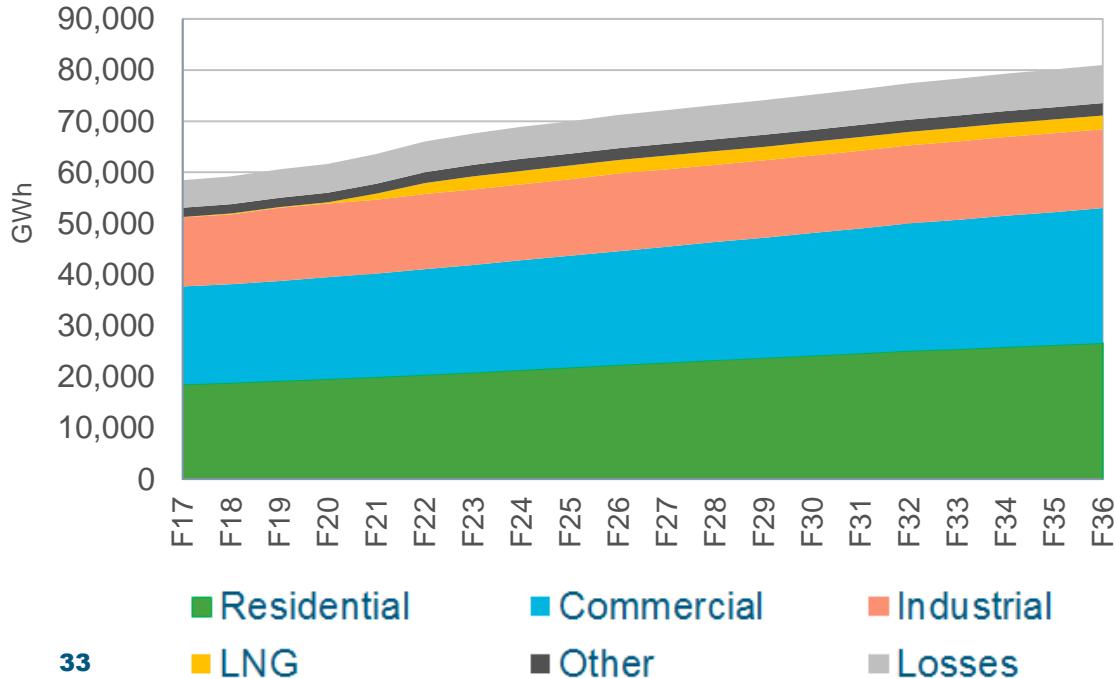


- Fortis Tilbury, LNG Canada and Woodfibre LNG have confirmed their intent to take service from BC Hydro.
- Delays to final investment decisions have pushed out in-service dates.



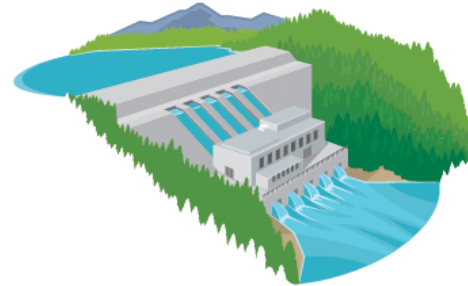
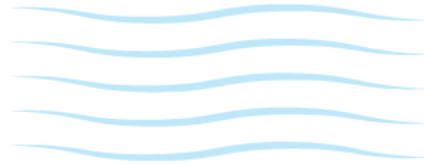
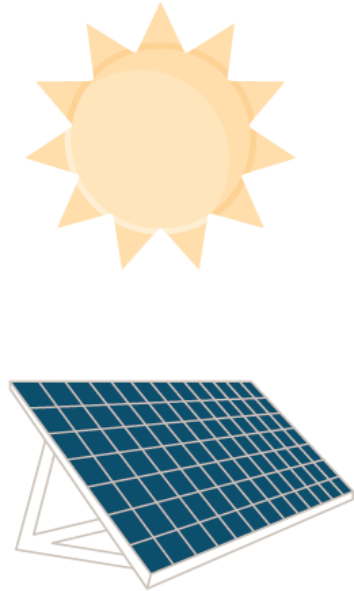
# Demand is growing

We continue to forecast significant long-term growth for all customer sectors.



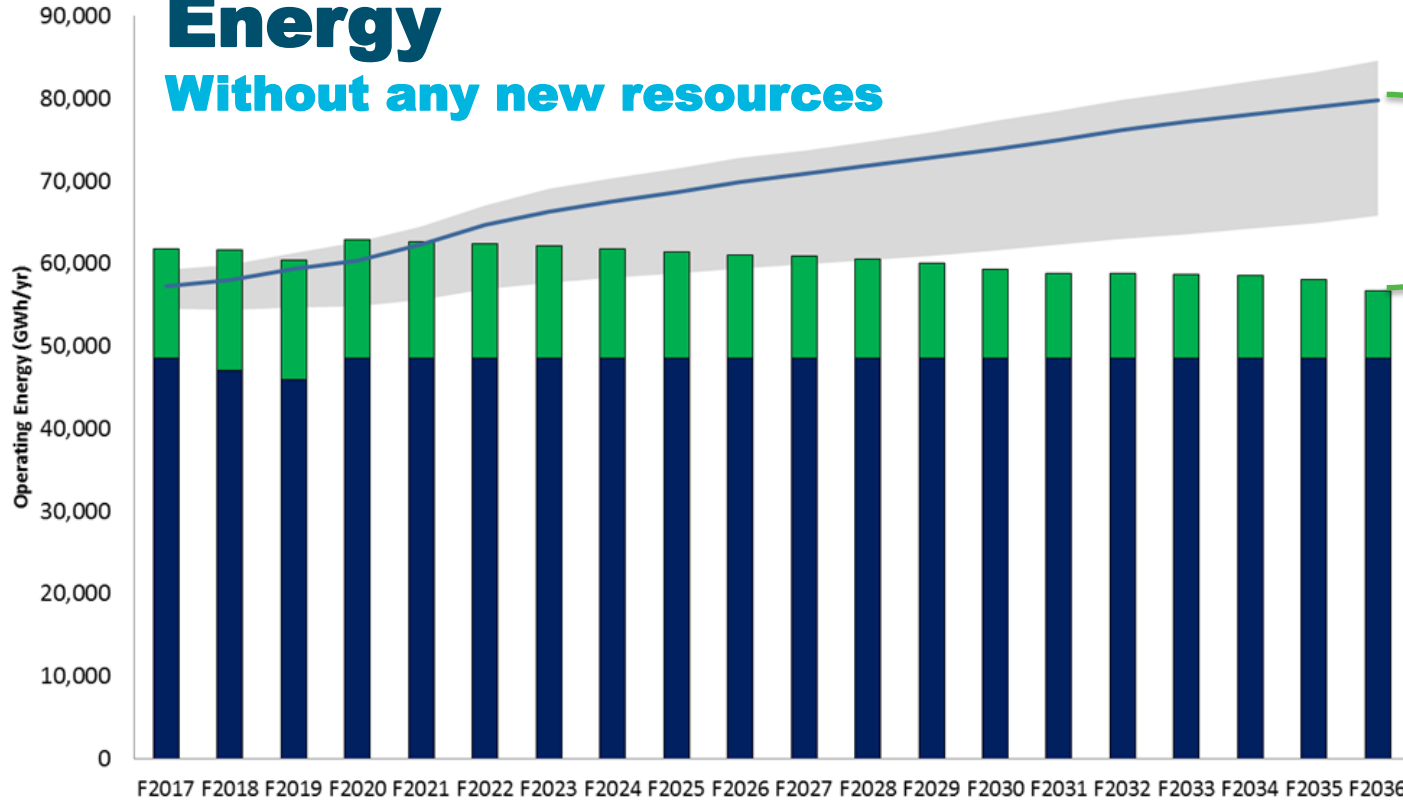
- Line losses & other

# Energy vs. Capacity



# Energy

## Without any new resources

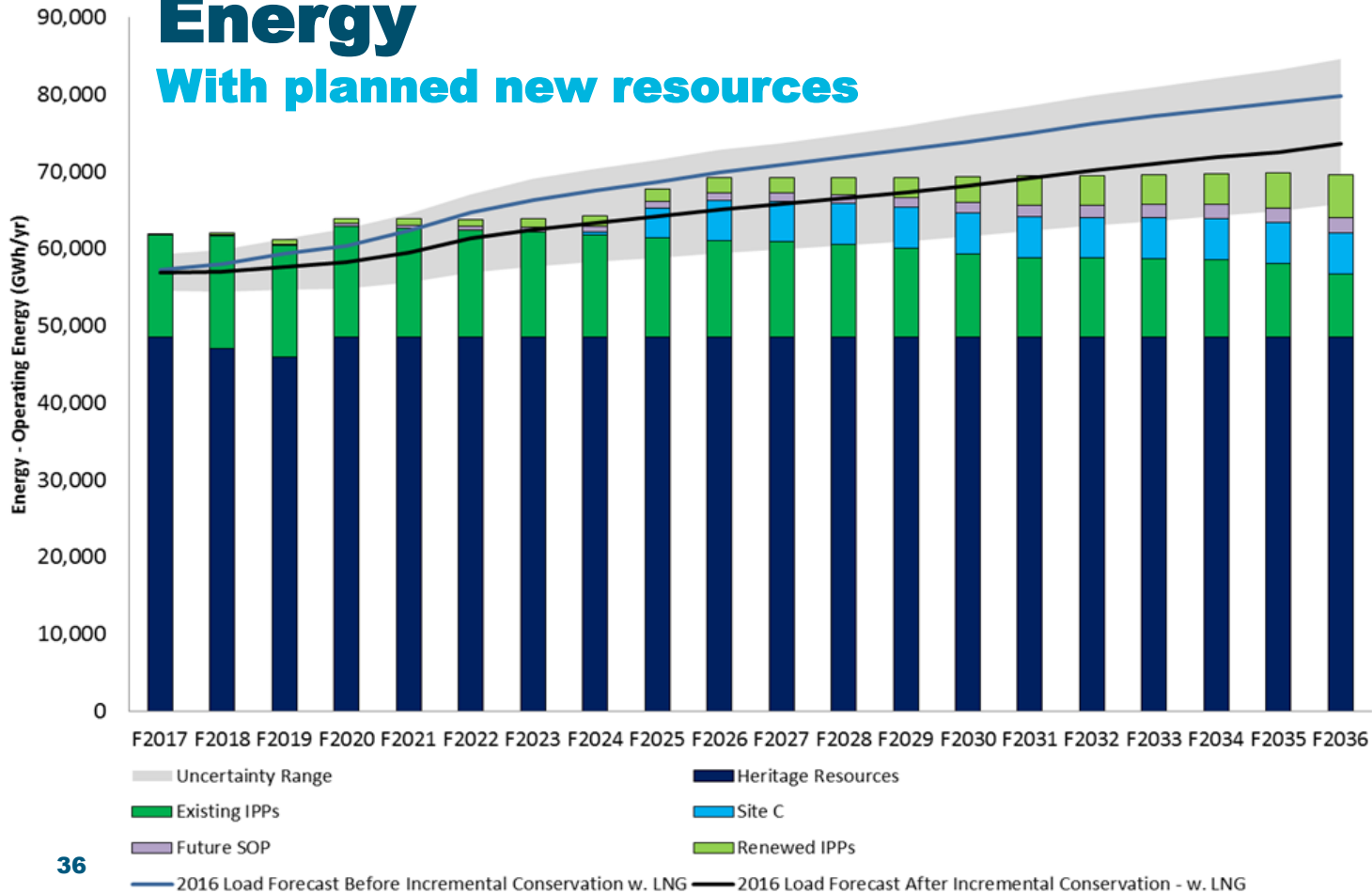


By 2036, B.C. would have an energy supply gap of **23,000 GWh** – equivalent to the power needs of over **2 million homes**.

Uncertainty Range
  Heritage Resources
  Existing IPPs
  2016 Load Forecast Before Incremental Conservation w. LNG

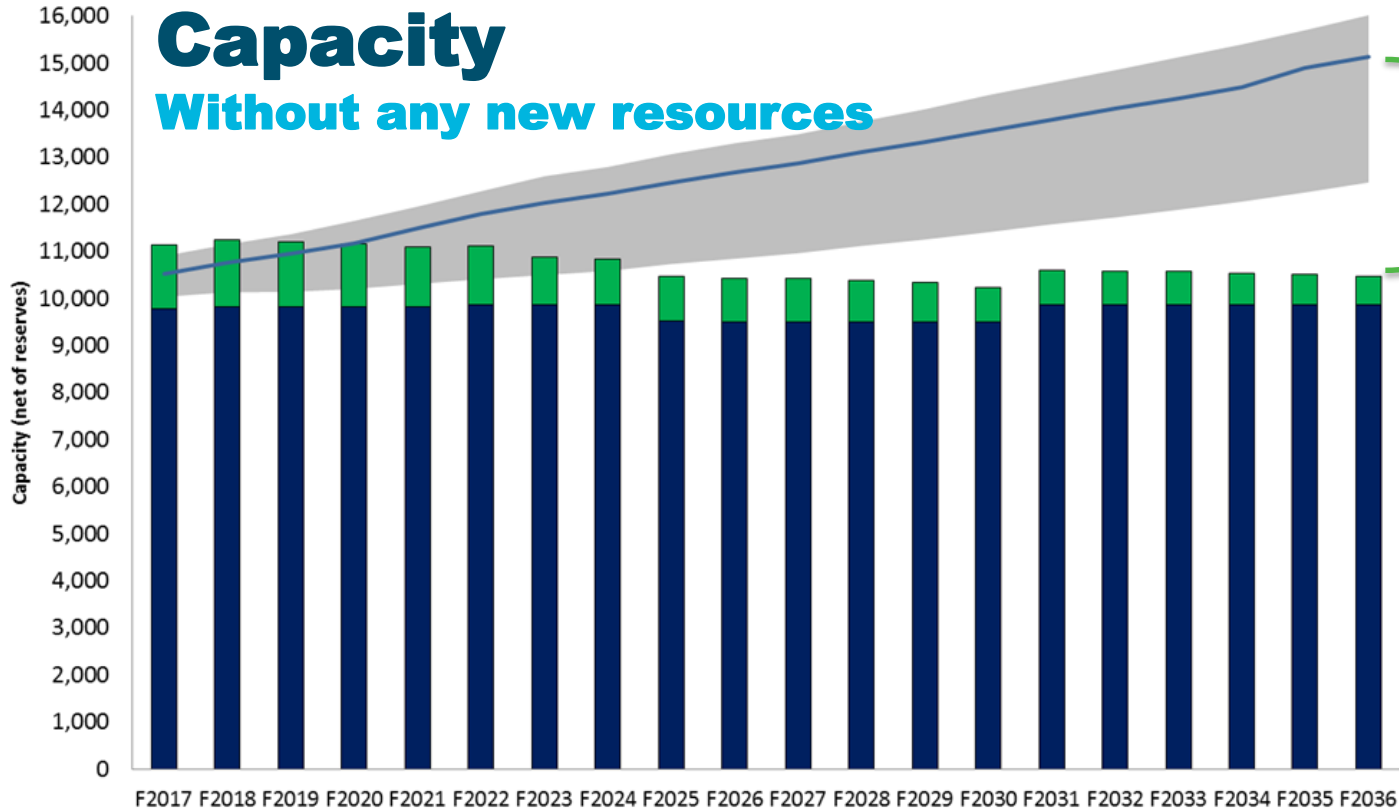
# Energy

## With planned new resources



# Capacity

## Without any new resources

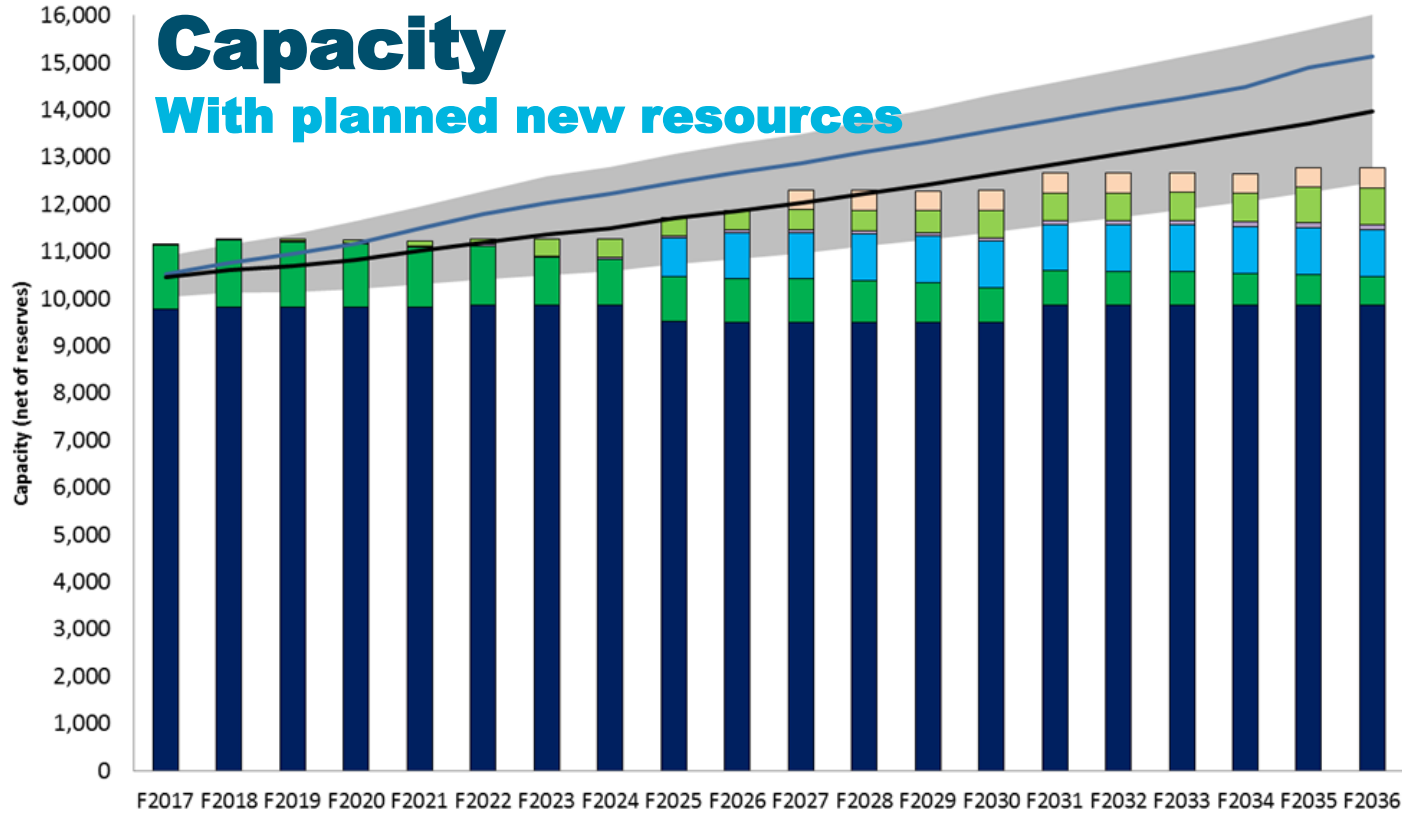


Our capacity supply gap would be **4,600 megawatts** in 2036 – over 4 times the capacity of Site C.

Uncertainty Range
  Heritage Hydro
  Existing IPPs
  2016 Load Forecast Before Incremental Conservation w. LNG

# Capacity

## With planned new resources



Uncertainty Range

Existing IPPs

Future SOP

Revelstoke Unit 6

2016 Load Forecast After Incremental Conservation - w. LNG

Heritage Hydro

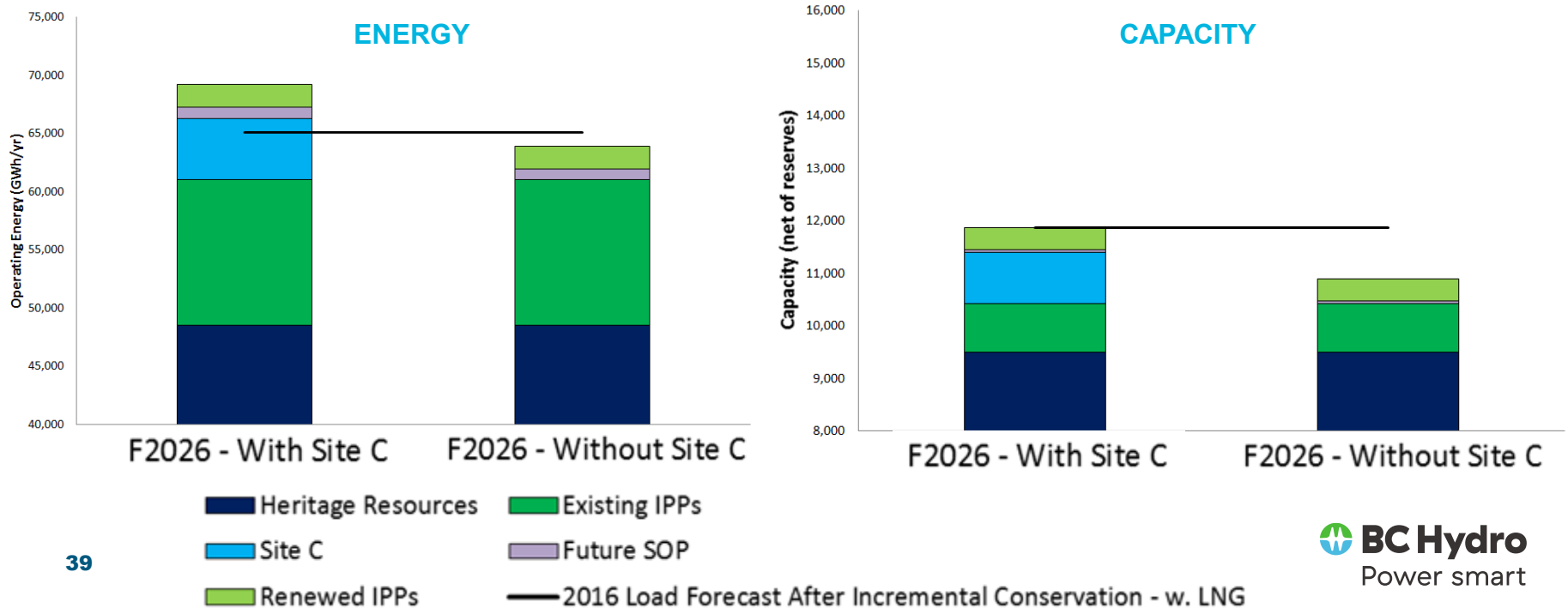
Site C

Renewed IPPs

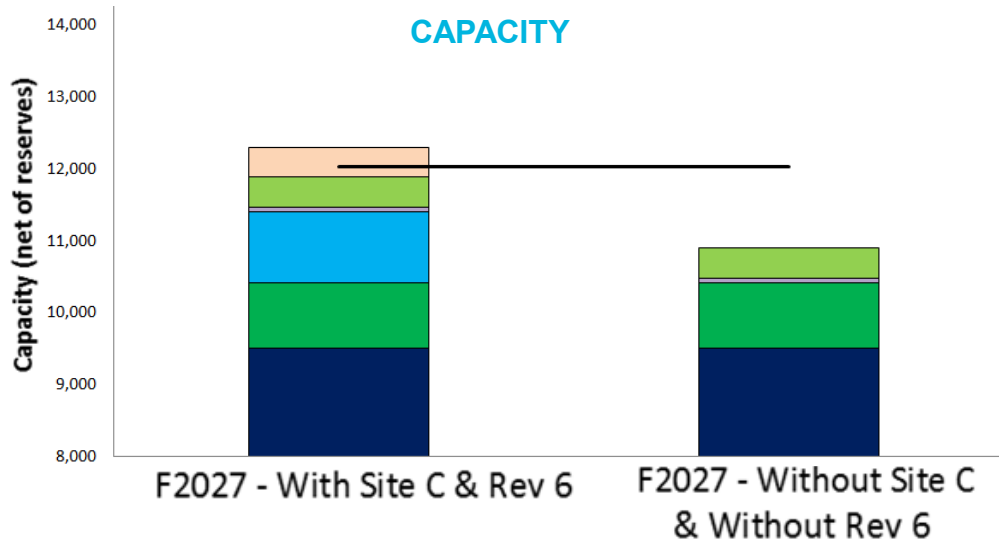
2016 Load Forecast Before Incremental Conservation w. LNG

# Without Site C, British Columbia would have a capacity deficit of over 950 MW (8%) and an energy deficit of over 1,100 GWh (2%) in 10 years

This is equivalent to the power needs of 100,000 homes



# In 2027, without Site C and Revelstoke 6, British Columbia would have a capacity deficit of over 1,100 MW (9%)



Heritage Hydro

Site C

Renewed IPPs

2016 Load Forecast After Incremental Conservation - w. LNG

Existing IPPs

Future SOP

Revelstoke Unit 6

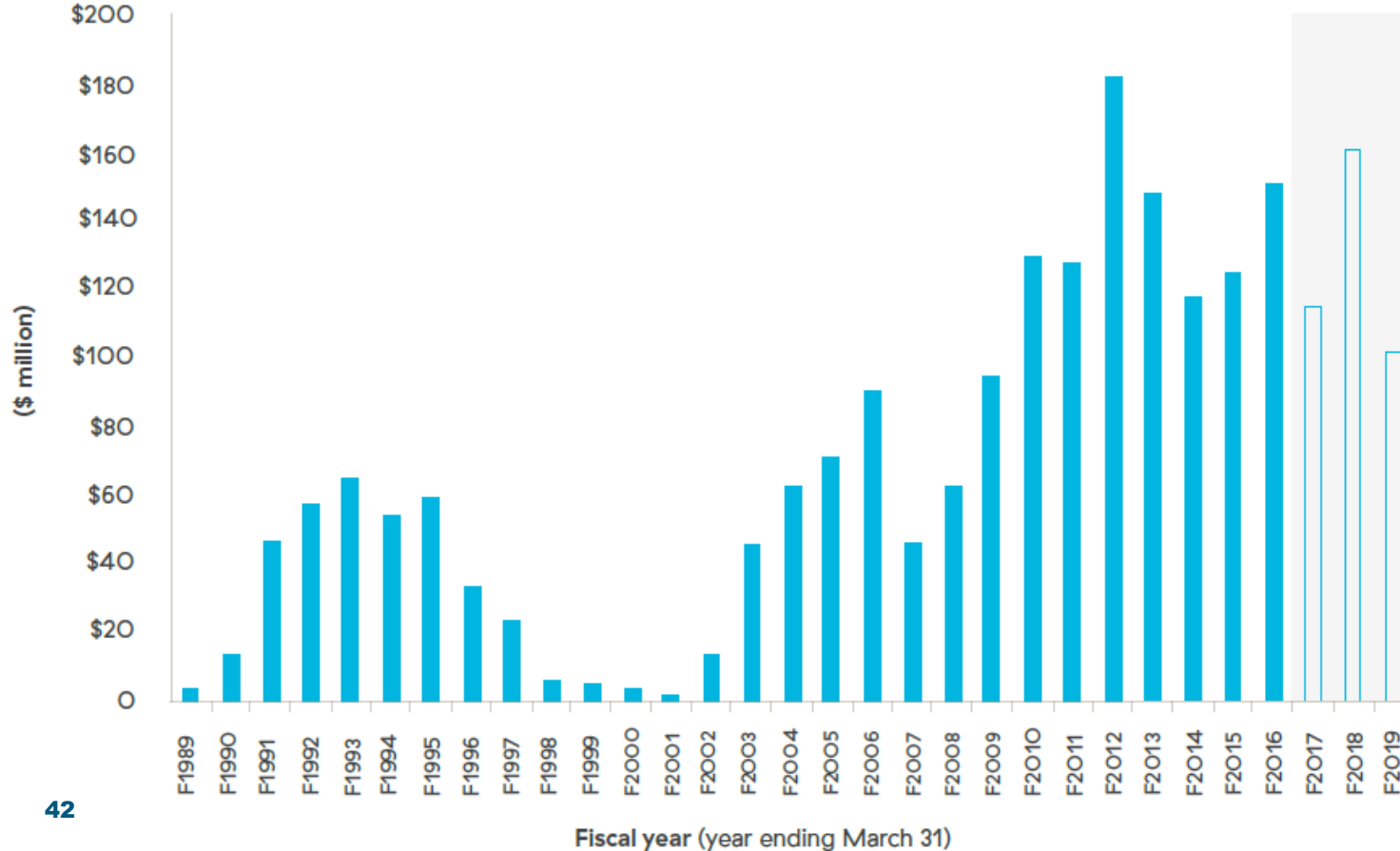


# Investing in conservation

Since 2003, BC Hydro has invested \$1.3 billion in conservation (an average of \$100 million per year).

Our conservation programs achieved cumulative energy savings of 5,091 gigawatt hours from 2008 to 2016 – that's equal to the amount of power that will be produced by Site C.

# Conservation investment 1989 to 2019



# Our conservation plan

## On track to exceed the *Clean Energy Act* target

- ✓ Invest \$375 million over the next three years, including \$7.8 million on low income programs.
- ✓ Re-focus programs and adjust and discontinue programs that are not as cost effective – reducing average cost to \$22 per megawatt hour.
- ✓ Use new tools, information and technologies to help customers make smart choices about energy consumption.
- ✓ Retain and expand programs that align with customer and system needs.



