

# B.C.'s Electricity Grid & Markets



**Alex Tu, *BC Hydro***



**Bruce Chow, *BC Hydro***



**Monique Stevenson, *BC Hydro***



# BC Hydro's integrated system

Provides approximately 5,000,000 customers with reliable electricity

## Generation

- 12,000 MW capacity
- 30 hydroelectric plants and 2 thermal generating stations
- Over 97% clean

## Transmission

- 500 kV series-compensated backbone
- 20,000km of transmission lines
- Over 300 substations
- Interconnected to Alberta and US

## Distribution

- 60,000km of distribution lines
- Serve 14 non-integrated areas



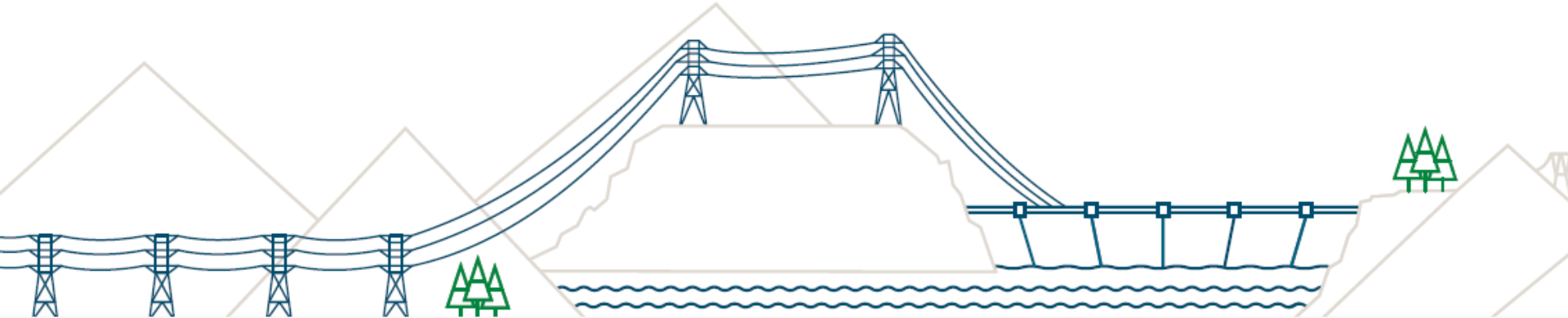
# BC Hydro's Integrated System Resource Planning

What is an Integrated Resource Plan (IRP)

Developing the IRP

What's in the IRP

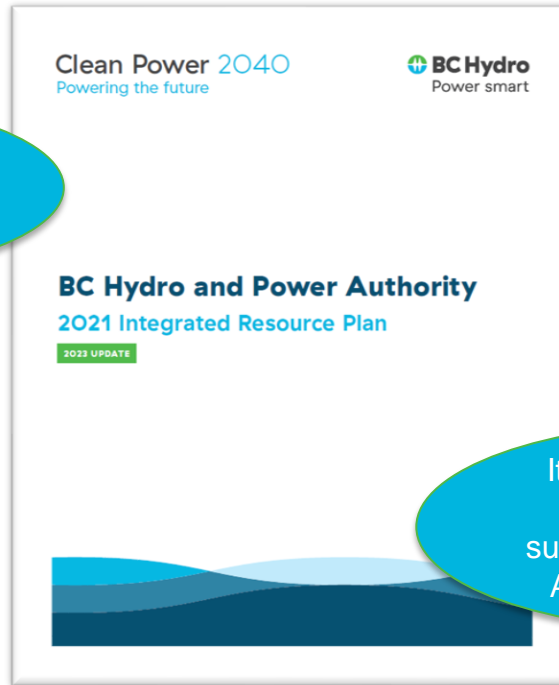
Staying involved



# What's an Integrated Resource Plan (IRP)

The IRP is a guidebook for the what, when and how of meeting customers' evolving electricity needs

It has a 20-year outlook, and is updated on regular intervals



An update was filed with the BC Utilities Commission in June, 2023

It aligns with Provincial legislation and policy, such as the Clean Energy Act and CleanBC Plan

# What does the plan include?

It guides the what, when and how much of future resources

CONSERVE AND  
MANAGE

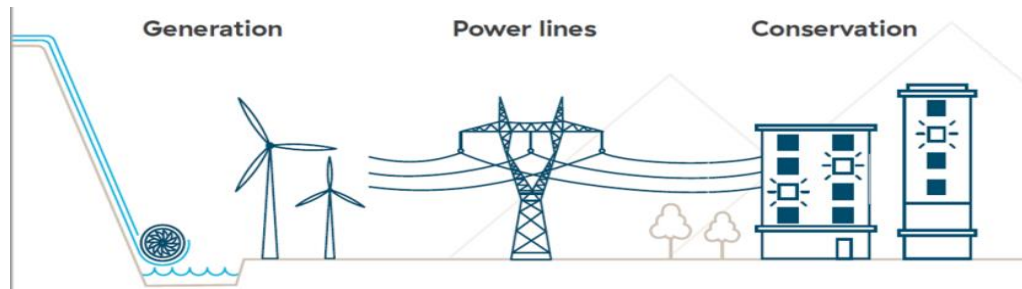
Demand-side measures

SYSTEM  
UPGRADES

BC Hydro infrastructure upgrades  
(generating station and power lines)

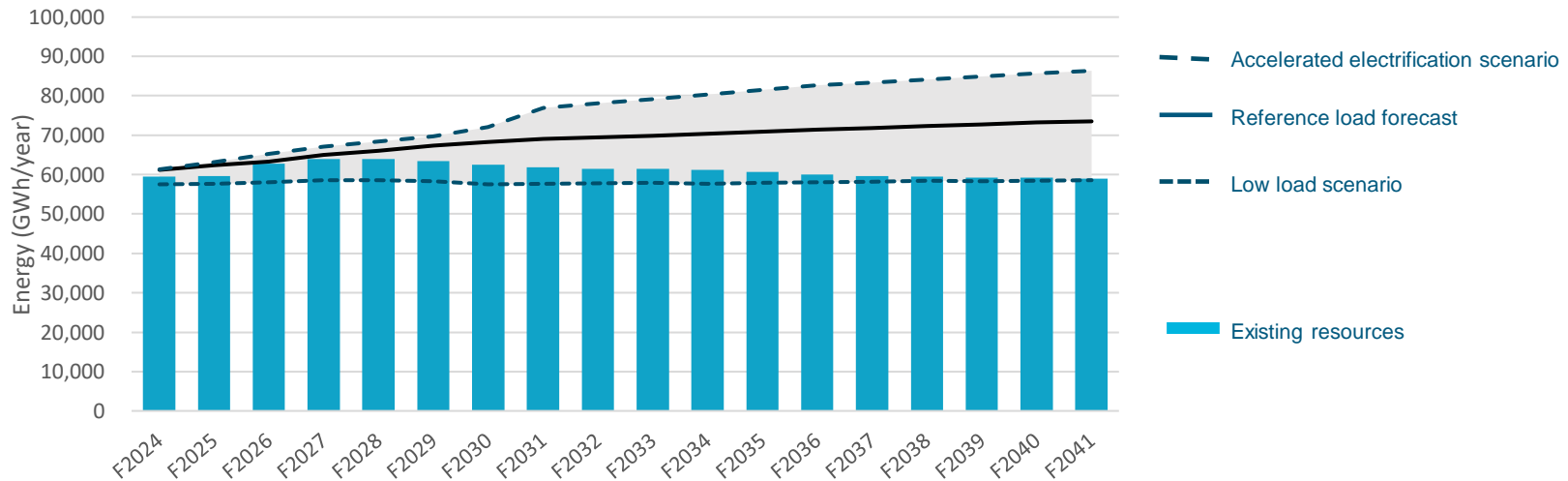
BUY

New energy acquisitions



# The plan considers a range of future scenarios

The plan adds resources to meet future customer electricity needs, and considers uncertainty through high and low electricity demand scenarios



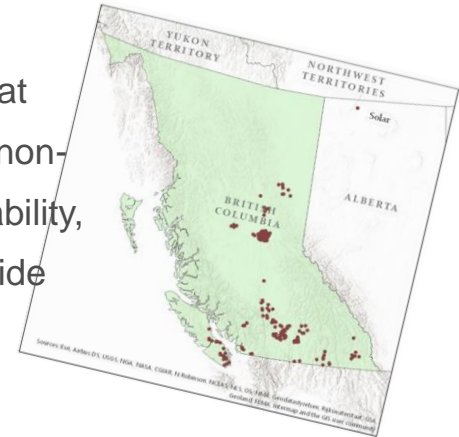
# An inventory of demand and supply options

The latest generation supply options update (2019-2020) focused on solar, wind and batteries

## Generation options (e.g.)

- Solar
- Wind
- Batteries
- Run-of-river hydro
- Geothermal
- Biomass
- Municipal solid waste
- Pumped hydro storage

A high level planning exercise that gathers financial (e.g. cost) and non-financial (e.g. technology, availability, footprint) information of supply-side options



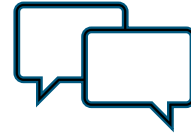
# 2021 IRP – what we heard from First Nations

The IRP is the earliest we can engage on planning to meet customer future needs



## Themes that emerged:

- **Reconciliation** was the top priority
- **Limiting land and water impacts** was another top priority
- Strong **interest in clean energy opportunities**
- Consider **unique circumstances of Indigenous communities** and customers



- Included two rounds of consultation
- 64 Indigenous Nations and Organizations participated
- 84 participants attended regional workshops
- 59 survey responses
- Report from the First Nations Energy & Mining Council



# What's in the 2021 Integrated Resource Plan

The plan update shows a need for new renewable energy resources

CONSERVE AND  
MANAGE

SYSTEM UPGRADES

BUY

Energy efficiency  
(with scalable levels)

Voluntary time-varying rates

Demand response programs

Industrial Load Curtailment

Transmission reinforcement to  
South Coast (Step 1 and Step 2)

Prince George to Terrace  
Capacitor

Utility scale batteries

Electricity Purchase  
Agreement (EPA) renewals

Energy Acquisitions

Acquire about 3000 GWh of  
Clean or renewable energy

2021 IRP ACTIONS

ACCELERATED

ACCELERATED

EXTENDED

NEW

UPDATED 2021 IRP ACTIONS

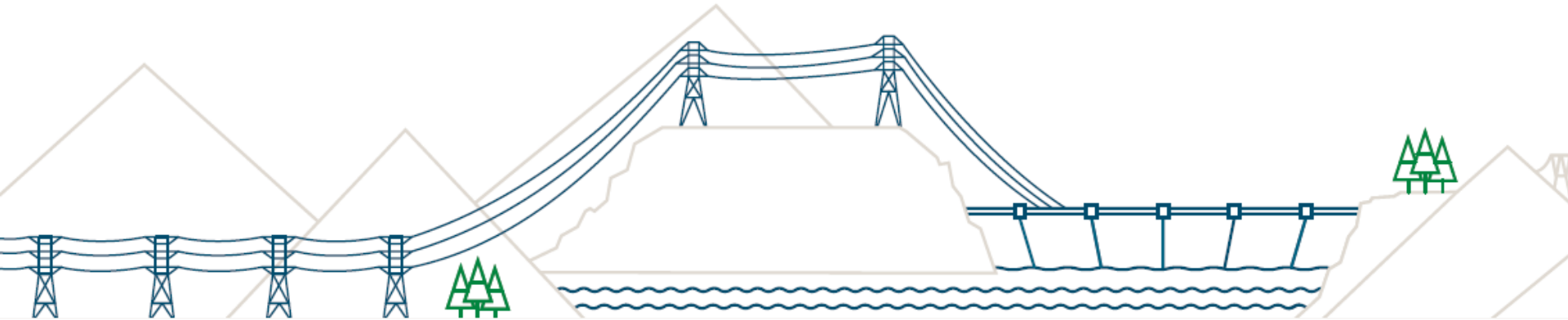
# The plan will be updated in 2025

Being flexible during this time of energy transition and global uncertainty means we'll be updating the plan more frequently

## How to contact us

- [CP2040.Indigenous@bchydro.com](mailto:CP2040.Indigenous@bchydro.com) or call us at 1-877-461-0161 extension #3.
- To view the updated plan: [CleanPower2040](#).

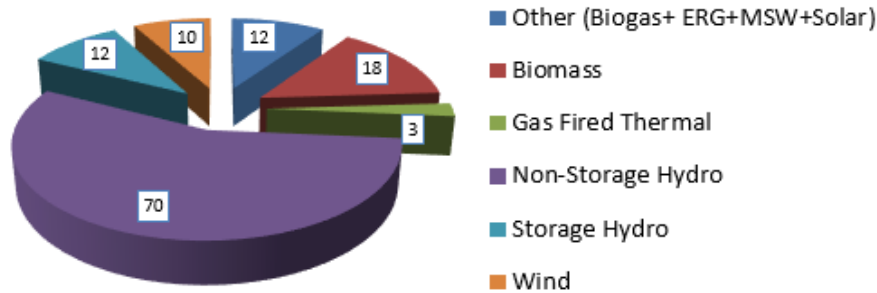
# IPP Portfolio Management - Power Acquisitions



June 27, 2023

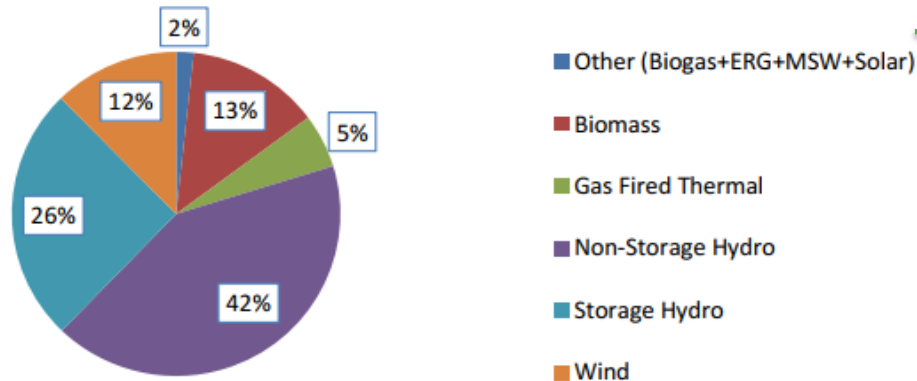
# BC Hydro Independent Power Producer (IPP) Portfolio

Electricity Purchase Agreements (EPAs) → 125 Operating IPP facilities



Link to: [IPP Supply Map & Lists](#)

IPP energy deliveries to BC Hydro → 16,330 GWh in fiscal 2022



Approximately **25%** of our total supply

# What is an Independent Power Producer (IPP)?



## Energy companies

- Including many with First Nations partners

## Industrial companies

- Examples: Pulp & Paper sector



## First Nations

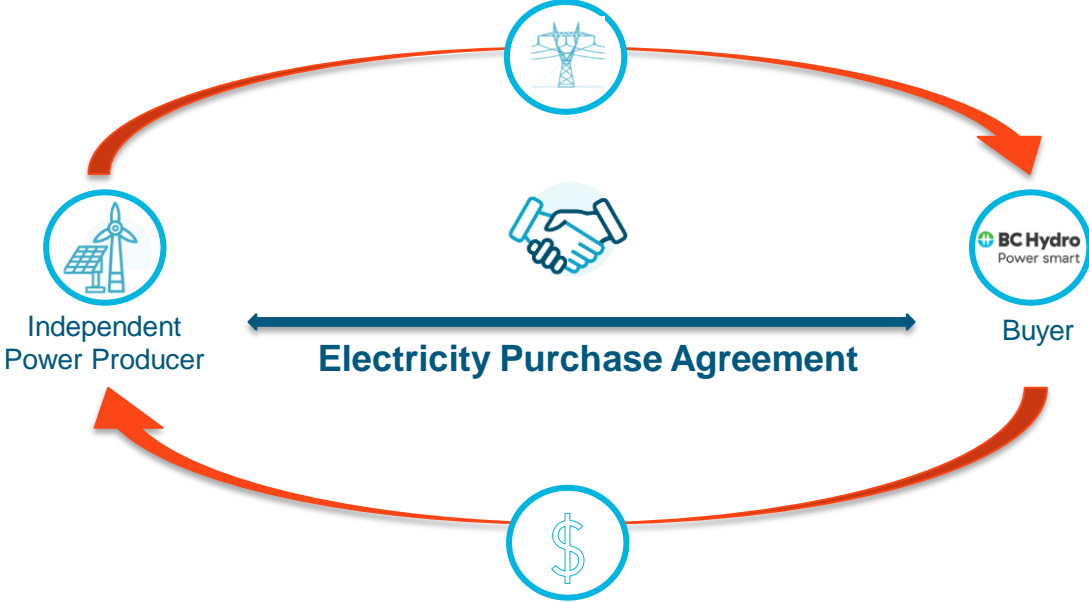
- Examples: Hucapasath, Tla-o-qui-aht, Tsilhqot'in, etc.

## Local governments

- Examples: MetroVan, Nanaimo Regional District



# What is an Electricity Purchase Agreement (EPA)?



# What is included in an Electricity Purchase Agreement?



Electricity  
Purchase  
Agreement



- Pricing



- Project definition



- Contract term



- Obligations of each party



- Rights of each party



- Confidentiality

- Regulatory

# BC Hydro's competitive Call for Power



On June 15, the Province of BC and BC Hydro announced plans for a **Call for Power**:

- Estimated need of about **3,000 GWh per year**, starting delivery **as early as 2028**
- Larger clean or renewable energy projects
- First Nations partnership opportunities



# We're planning to look for



**Energy** profile aligned with our needs: approximately 3,000 GWh/year



Connect to BC Hydro's **existing system**



**Cost effective** energy



**Reliable delivery:** starting as early as 2028



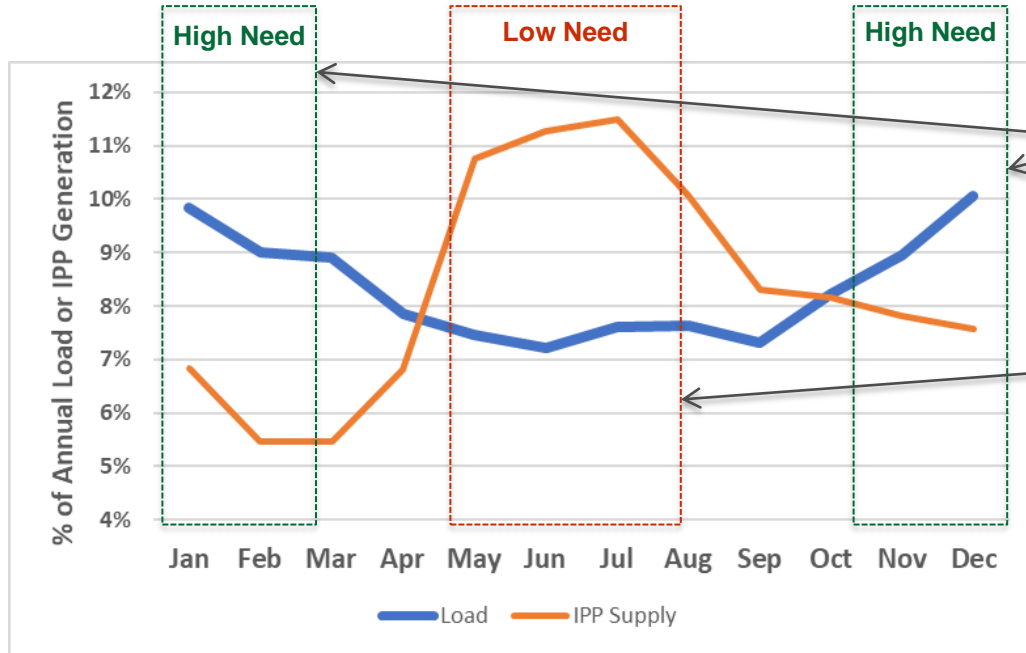
**Larger clean or renewable projects**



**First Nations partnerships** and **collaboration**

# Projects that best align with our system needs

## Projects with a profile that best align with our needs



Our need is greatest in Winter when customer load is highest

Minimal need in Spring since load is lower

# Partnerships with First Nations

We will work closely with First Nations to co-design the call

- BC Hydro is committed to reconciliation and the principles of the UN Declaration on the Rights of Indigenous Peoples
- BC Hydro is committed to early engagement and working with First Nations to find meaningful partnership opportunities
- We want to listen and learn what is important to First Nations for this call
- We want to collaborate with First Nations on the design of the call and we are open to ideas and input on how it will work

# What is our schedule for Call for Power ?

We're engaging with First Nations, IPPs and stakeholders to design our Call for Power

- Information sessions, June 29, 10 am to 11 am and July 6, 1 pm to 2 pm
- Opportunities for input and feedback in summer and fall
- For more information, visit [BC Hydro Call for Power Website](#)

