



ONTARIO POWER AUTHORITY

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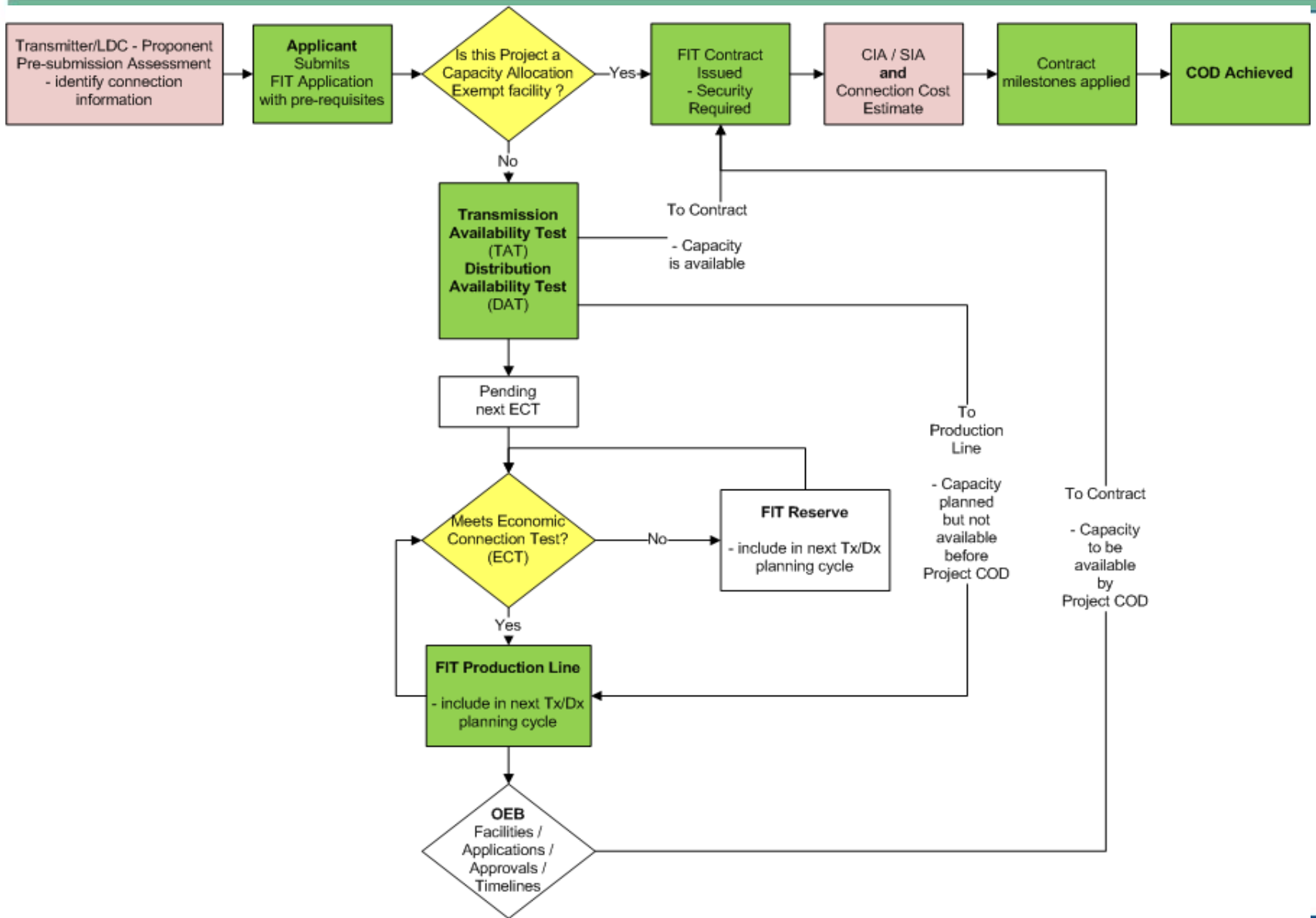
Integrating Renewable Energy Supply Resulting from Uptake of the FIT and microFIT Programs

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Today's Discussion

- Connection Availability Tests
- Feed-In Tariff (FIT) and microFIT Contract Execution
- Economic Connection Test (ECT)
- Post-ECT Challenges and Power System Integration

FIT Program Process Diagram



Connection Availability Tests

- November 30, 2009 last FIT Launch Period day
 - Applications still submitted to OPA post-Nov 30
 - Order by time-stamp and not by COD Acceleration Days and/or Criteria
- After assessing Applications, a ranked order of Applicant Projects will be sent to Distribution Availability Test (DAT) or Transmission Availability Test (TAT)
 - DAT and TAT will determine which Applicant Projects receive FIT Contracts
- Applicant microFIT and Capacity Allocation Exempt (most projects < 500 kW) Projects will not be subject to DAT/TAT and will receive conditional contract offers (microFIT) or FIT Contracts

Connection Availability Tests

- DAT conducted by applicable Local Distribution Companies (LDCs)
- TAT conducted by OPA
- First DAT and TAT in December 2009
 - OPA will lead coordination of DAT and TAT
 - As required, TAT will be supported by the Independent Electricity System Operator (IESO) and applicable Transmitters

microFIT and FIT Contract Execution

- Only Applicant Projects from the Launch Period will be eligible for first round of microFIT and FIT Contracts
 - Conditional offers for microFIT Contracts to occur before the end of 2009
 - Execution of FIT Contracts planned for January 2010
 - Capacity Allocation Exempt Facilities (most projects < 500 kW)
 - All other Applicant Projects (> 500 kW)
- Additional conditional microFIT contract offers for non-Launch Applicant Projects will occur after January 2010

Why is an Economic Connection Test Needed?

- Renewable energy supply uptake a key objective and priority under the Green Energy Act (GEA)
- Even before GEA, many prospective developers anticipating OPA renewable energy supply procurement initiatives
 - Previous OPA survey identified about 15,000 MW of projects
- Available transmission connection capacity about 2,500 MW
 - Does not include Bruce-to-Milton project
 - Adds about 1,500 MW of additional connection capacity potentially for renewable energy supply

Uptake of microFIT and FIT Applicant Projects from Launch Period is expected to exceed existing connection capacity – therefore, explicit mechanisms (Economic Connection Test) are needed to help establish the need for transmission and distribution development

Economic Connection Test

- Economic Connection Test (ECT) is an integrated transmission and distribution planning tool to facilitate renewable energy supply integration within the FIT Framework
- It consists of
 - Enabler Line identification
 - Individual project assessment
 - Network upgrade identification
 - Incorporating LDC input
- ECT conducted on a regional basis
- Ongoing coordination between the OPA and LDCs

LDC and OPA Planning Processes

LDC Planning Process (Dx)

- Prepare distribution system plans, in accordance with OEB requirements
- File distribution plans every 3-years
- Identify expansions and renewable enabling improvements
- Update annually in response to uptake of FIT projects, as well as other anticipated developments

OPA Planning Process (Tx)

- Conduct ECT process for FIT applications
- 6-month cycle for each region
- Identify network expansion in the form of enabler facilities
- Identify network upgrades
- Continue to plan for non-FIT generation

Processes may not be synchronized, but each will benefit from the exchange of planning information

Purpose of the ECT

- As stated in the GEA
 - *To promote the use and generation of electricity from renewable energy sources in a manner consistent with the policies of the Government of Ontario, including the timely expansion or reinforcement of transmission systems and distribution systems to accommodate the connection of renewable energy generation facilities.*
- ECT will identify the transmission and distribution system expansions or reinforcements which are required to connect a given FIT Applicant Project

Purpose of the ECT

- Key aspect of GEA is the ‘right-to-connect’
 - *A transmitter or distributor shall connect a renewable energy generation facility to its transmission system or distribution system in accordance with the regulations, the market rules and any licence issued by the Board if, (a) the generator requests the connection in writing; and (b) the applicable technical, economic or other requirements prescribed by regulation or mandated by the market rules or by an order or code issued by the Board have been met in respect of the connection.*
- ECT will consider whether transmission or distribution expansions or reinforcements, which are required to connect a given FIT Applicant Project, meet applicable technical and economic requirements

ECT Activities

- FIT objectives to be achieved in ECT
 - Maintaining a dataset reflecting available connection capacity
 - ‘Squeezing’ as much renewable energy supply as practical onto the existing system
 - Developing plans to incorporate system expansion while meeting technical and economic considerations
 - Moving FIT Applicant Projects towards being offered FIT contracts, in step with planned and approved system expansions

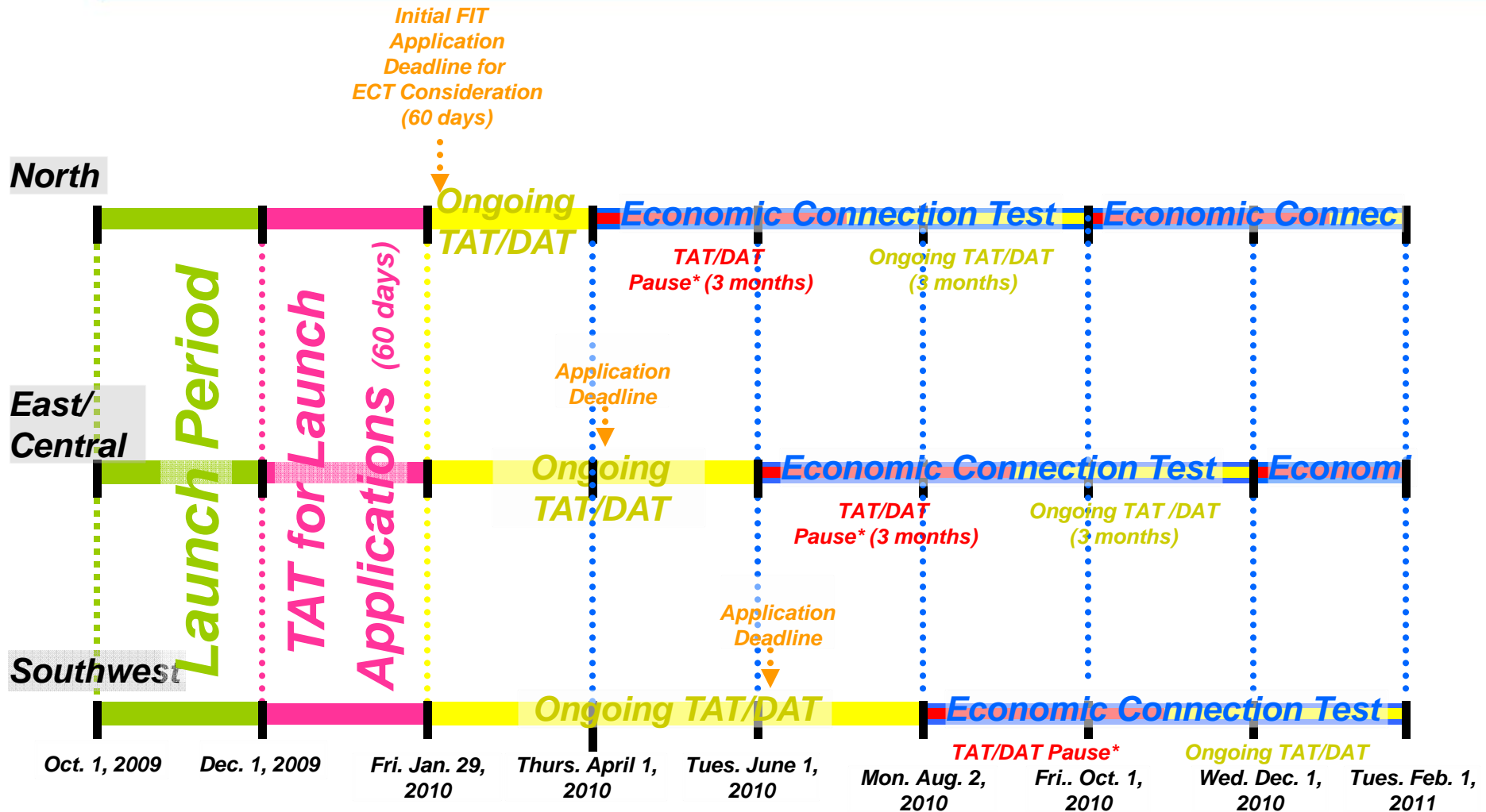
FIT Production Line

- If system expansion or reinforcement plans can be justified, then FIT Applicant Projects can move from the FIT Reserve to the FIT Production Line
- Applicant Projects remain in the Production Line while their required system upgrades/expansions are proceeding through approvals processes
- Applicant Projects in the Production Line will be reviewed at the beginning of each subsequent ECT
- After subsequent ECTs, Applicant Projects in the Production Line can
 - Receive FIT Contract
 - Move to FIT Reserve
 - Remain in Production Line

Objective of FIT Production Line

- Moving Applicant Projects to the Production Line is consistent with GEA objectives
- Production Line projects provide basis for LDC and Transmitter plans
 - Application Security at risk provides more certainty to LDCs and Transmitters that Applicant Projects are committed
 - ECT and Production Line help establish the need for system expansion
- However, the Production Line does not guarantee that required system expansions will ultimately proceed
 - System expansion still needs to achieve regulatory approvals from the Ontario Energy Board (e.g., Leave to Construct)

Draft DAT/TAT and ECT Schedule by Region



***TAT and DAT pause may end prior to the end of the third month, if all the ECT activities requiring the pause are completed earlier**

Proposed ECT Activities Timeline

OPA Activities

ECT
START
DATE

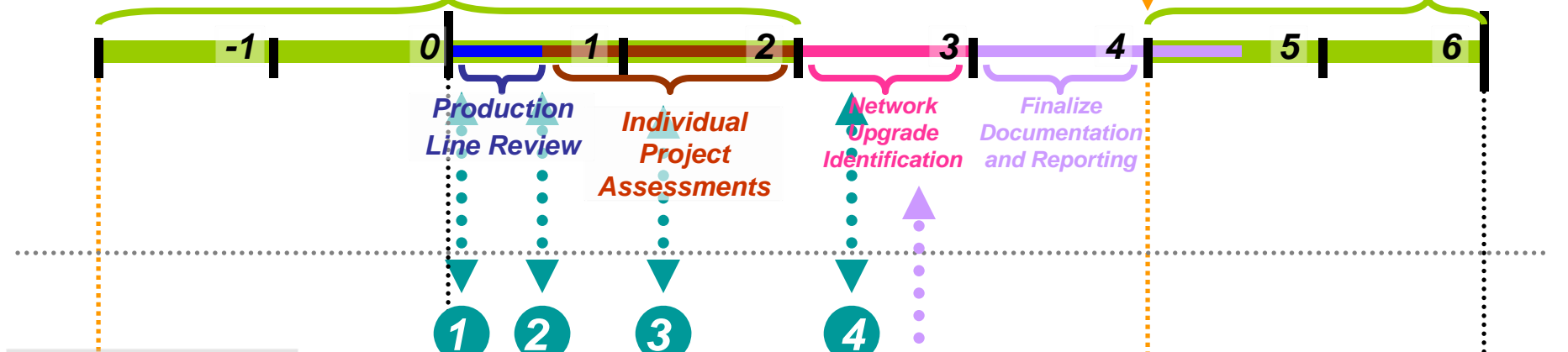
NEXT ECT
START
DATE

FIT Application
Deadline for
ECT Consideration

Next
Application
Deadline

Enabler Identification

Enabler Identification



LDC Activities

1 LDCs provide input on specific projects, as required

2

3

4 LDCs provide planning input to the ECT

DAT is Paused
Applications Continue*

Ongoing DAT

Ongoing DAT (3 months)

LDCs confirm ECT input based on applications received before the application deadline

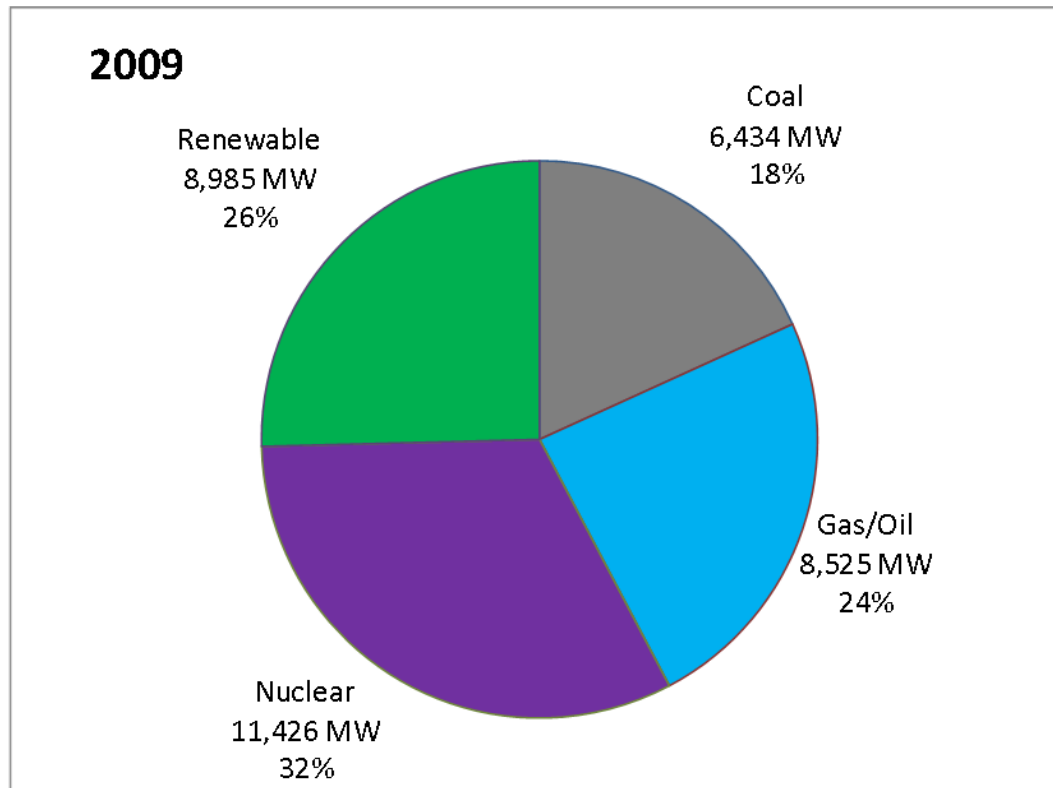
5 LDCs provide related documentation

LDCs confirm ECT input based on applications received before the application deadline

OPA and LDC Coordination

- Ongoing coordination between OPA and LDCs will help ECT function smoothly
 - OPA will benefit from ongoing updates about LDC plans and how they may relate to specific FIT Applicant Projects
 - LDCs will benefit from receiving information from OPA about available transmission capacity
 - Embedded LDCs will benefit from ongoing communication with their host LDC

Ontario Installed Supply Capacity (2009)



Total Installed Capacity = 35,370 MW

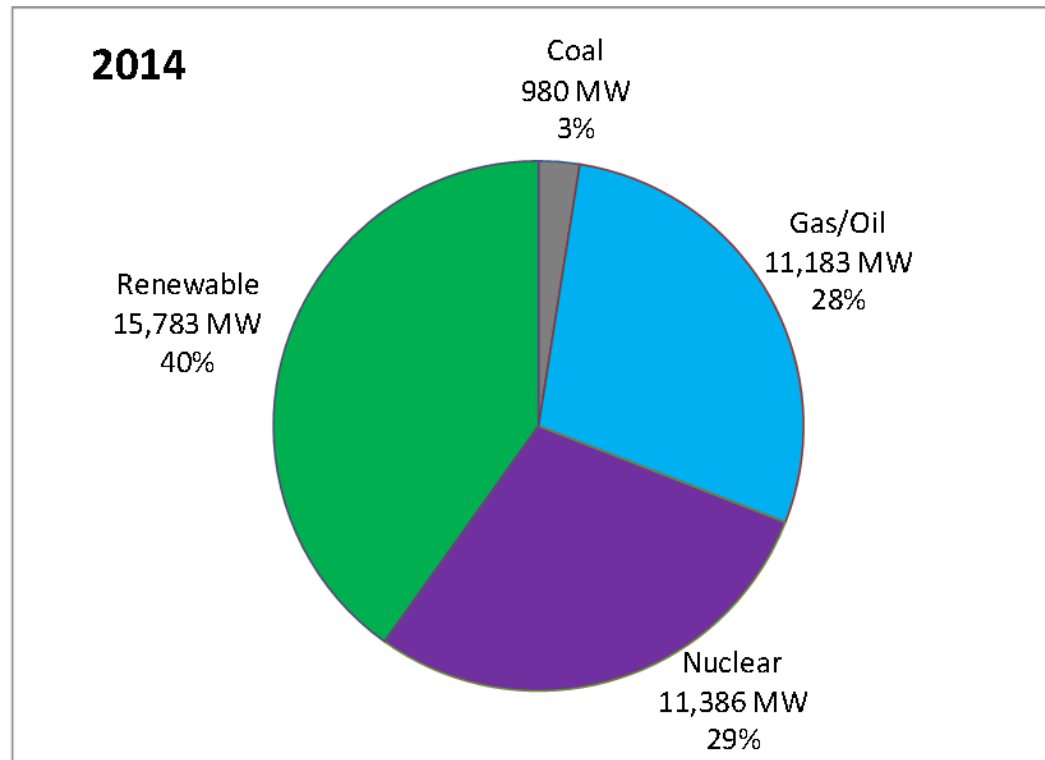
Water = 7,826 MW (22%)

Wind = 1,084 MW (3%)

Biomass = 75 MW

Solar PV = 40 MW

Projected Ontario Installed Supply Capacity (2014)



Projected Total Installed Capacity = 39,332 MW

- **Water: 8,500 MW + (approx. 22%)**
- **Wind: 5,300 MW + (approx. 14%)**
- **Biomass and Solar PV: 1,800 MW + (approx. 4%)**

Challenges and Integration

- Meeting the demand/supply gap
 - > 20,000 MW of new generation capacity needed over next 20 years
 - Supply resources still required, despite economic downturn and reduction in electricity demand
- Aging infrastructure
 - Transmission upgrades and expansion needed
- Government's Supply Mix Directive (June 2006)
 - Closure of coal-fired generation facilities
 - Role of conservation resources
 - Refurbishment and development of nuclear generation facilities

Challenges and Integration

- Potential forthcoming procurement initiatives/Ministerial Directives require further system integration
 - ‘Small’ and ‘large’ CHP
 - Biomass conversion of OPG’s coal-fired generation
 - Gas-fired NUGs
- Green Energy Act
 - Facilitating renewable energy supply
 - Uptake of FIT/microFIT Programs
 - Management of generation procurement contracts
 - Connection to, and development of, transmission and distribution
 - Regulatory framework and approvals
 - Scope of Integrated Power System Plan
 - Costs to ratepayers

OPA Query Options

- Email
 - FIT fit@powerauthority.on.ca
 - microFIT microfit@powerauthority.on.ca
 - OPA Information Service info@powerauthority.on.ca
- Telephone
 - FIT Call Centre 1-888-387-3403; M-F 9am-5pm
 - Main OPA Reception Local: 416-967-7474;
Toll free: 1-800-797-9604 with prompts for keypad routing to Call Centre
- Fax
 - FIT and microFIT fax 1-866-833-7978
- Website
 - Online searchable Q&A facility
 - Submission of written questions