Update on Implementation of Conservation First Framework and Industrial Accelerator Program

Presentation to the Deputy Minister and Minister's Office

November 10, 2016

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Purpose

- To provide an update on:
  - Conservation First Framework (CFF) and Industrial Accelerator Program implementation, including targets, customer satisfaction, program design, collaboration, governance and integration with regional planning
  - Conservation mid-term review, including preliminary options to be considered to address identified challenges

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Agenda

- CFF implementation updates
  - Progress on key CFF policy objectives since May 2016 update
  - Local programs and potential for province-wide deployment
  - Industrial Accelerator Program (IAP) implementation
- Mid-term review
  - Implementation status
  - Key issues for review and potential solutions to be explored
- Appendices

CFF / IAP implementation summary: savings and mid-term review on track, programs being developed to address customer satisfaction

- As of Q3 2016, 23% (1.63 TWh) of 7 TWh CFF target achieved; 11% of 1.7 TWh IAP target achieved (with another 23% contracted)
  - Portfolio remains cost-effective – within 4¢/kWh as of Q2 2016
  - Only 8.6% ($157M) of $1.8B LDC CDM Plan budget spent
- New province-wide Whole Home Pilot and Pay for Performance "Energy Performance Program" will alleviate many customer/market concerns regarding need for consistent province-wide programs and new residential programs
  - Both draft programs have been received favourably by potential customers/stakeholders
  - Challenges in Whole Home contracting may be overcome with recent senior-level attention from gas
  - Challenges will remain for customers with other programs not available province-wide, including proliferation of new local programs available only in certain LDC areas (e.g., Business Refrigeration)
- Mid-term review draft engagement plan has been posted for comment with invitation for advisory group members; advisory group to first convene in Jan. 2017
  - IESO currently planning for Q1 2018 completion of mid-term review
- Mid-term review will look at solutions for customer satisfaction, cost-effective target achievement, and integration with CCAP/regional planning, with emphasis on potential solutions that meet multiple policy objectives
  - E.g., opportunities to provide programs province-wide, options for target achievement that consider LDC and open procurement options

Conservation First Framework: performance measured against policy objectives in CFF directive

Policy Objective	Performance Measure(s)	May 2016 Status	Oct. 2016 Status
Targets, budgets and cost-effectiveness	• LDC achieved savings consistent with annual CDM Plan milestones • CDM Plans/programs are cost-effective (with exceptions per direction) • LDCs are delivering under Pay-for-Performance (P4P) model	Good/ Fair	Good/ Fair
Customer/market Satisfaction	• Consumers have deeper engagement with CDM (including brand marketing) • More choice and streamlined oversight and administration • All LDCs serving all customer segments • Improved low-income programs • Enhanced coordination for consumers served by several LDCs	Fair	Fair
Innovative LDC program design	• Innovative new pilots/programs designed by LDCs and available to customers	Good	Good
LDC collaboration	• Joint LDC CDM plans • Joint LDC initiatives (Collaboration Fund, Innovation Fund activities)	Good	Good
LDC/gas utility collaboration	• Joint LDC/gas utility programs and initiatives	Concern	Concern /Fair
Good governance	• Streamlined LDC and participant contracts • Streamlined CDM/program approvals	Fair	Good/ Fair
Integration with regional planning and system needs	• Regional CDM plans • Persisting measures, peak reductions, programs consider system need • CDM contribution to regional planning	Concern	Concern

Targets, budgets and cost-effectiveness: LDCs are generally on target and underspent

Status:
Good/Fair

Successes

- **23% (1.63 TWh)** target achieved as of Q3 2016
  - Per CDM plans, LDCs expect to achieve 33% of 7 TWh by end of 2016 (LDCs are on track with month by month historic results)
  - Cost effective portfolio within 4¢/kWh
- **Only 8.6 % ($157M of $1.8B)** of LDC CDM Plan budget spent as of Q3 (due to legacy framework funding of 2015 savings)
- Achievable Potential Study indicates 7 TWh target is achievable within existing budget
  - Some LDCs have less achievable potential in their area than original allocated target
- **Four** LDCs have achieved ≥70% of their target
  - LDCs are asking IESO to initiate target exchange process to enable them to pick up target/budget from other LDCs

Challenges

- **7% (0.50 TWh)** of target is still undefined in CDM plans
- LDCs are preserving CDM Plan budgets to increase potential value of their incentive*
  - E.g., continued reluctance in some areas to promote cost-effective programs with higher first-year acquisition costs (e.g., residential heating and cooling program). See Appendix B for details.
- Lack of LDC delivery under P4P program mitigated by new province-wide P4P program
  - P4P offers lower ratepayer risk/greater potential LDC/customer return
  - Province-wide P4P will also address challenges customers are seeing with lack of province-wide programs

Mitigation activities:
- IESO developing province-wide P4P program set to launch Fall 2016
- LDCs with unassigned target must resubmit plan at mid-term with plan to meet target
- IESO meeting with all LDCs that have a high unassigned target in next quarter

*At end of CFF, an LDC that meets/exceeds its target and spends less than its CDM Plan budget is eligible for a cost-efficiency incentive equal to the incentive the LDC gets for meeting/exceeding target – subject to a cap.

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Customer and market satisfaction: P4P program will help address need for province-wide program

Status: **Fair**

Successes

- Participant satisfaction remains strong despite ongoing feedback on challenges of varied programs offerings by LDC
  - >80% of business participants likely to recommend programs; >90% residential customers say programs met/exceeded expectations
  - New program review process implemented by IESO in July 2016 is resulting in more customer input/market research by LDCs
- Significant increase in belief in value of Save on Energy and web traffic
  - **22% increase** in people who agree they can save on their energy bills if they do CDM
- Positive feedback on draft province-wide P4P and Whole Home programs
  - Engagement results/customer focus groups indicate very favourable responses

Challenges

- Province-wide P4P and Whole Home will mitigate some issues multi-site customers have with inconsistent programs; challenges will remain (e.g., for small business and residential)
  - E.g., independent grocers request that Direct Install Refrigeration be made available province-wide
- Customer confusion/concern about how their conservation efforts translate into bill savings
- Few province-wide residential programs and not offered by all LDCs (HVAC, Coupons, Low Income)
  - E.g., Enwin currently not offering HVAC program and other LDCs indicating they will stop offering it in 2017

Mitigation activities:

- Province-wide marketing re-launched in Summer 2016
- P4P and Whole Home programs will provide consistent province-wide offerings

Innovative LDC program design: new program concepts being piloted

Status: **Good**

Successes

- 37 unique new programs included in CDM Plans
- **11 pilots** have been completed; 20 are currently in development or in market
  - $14M of $70M Innovation Fund committed as of October 25, 2016
- **16** new local programs approved; five started out as pilots funded by Innovation or Conservation Fund
  - E.g., THESL Pumpsaver, Adaptive (Smart) Thermostats
- LDC Residential Working Group developing business case to add air source heat pumps to Heating and Cooling Program in Q3 2017

Challenges

- Lengthy pilot development/ implementation cycle delays full program deployment
  - Where technology/program model has been proven elsewhere, LDCs can forego pilot and deploy full program
- Limited collaboration among LDCs on new local/regional programs
  - Only five pilots/programs developed by a collaborative LDC effort
- Increased local programs potentially further reduce LDC focus on province-wide programs and risk exacerbating customer concerns regarding consistency of offerings across Ontario

LDC collaboration: limited program design collaboration; increased collaboration on joint events/marketing

Status: **Good**

Successes

- Five new pilot/local programs developed by LDC collaboration are in development/underway
  - Kitchener/Waterloo/Cambridge/Ecobee Small Business; Customer First Electric Heat Thermostat; Horizon/THESL/Kitchener ECM retrofit; HONI/NPEI mid-stream agricultural pump program; Enersource/THESL/HONI Brampton Truckload Event
- **18** Collaboration Fund projects funded
  - E.g., Energy Into Acton – Fall 2016 LDC/gas customer event; working group program design support, regional energy managers, shared refrigeration specialist
  - $3.5 of $25M Collaboration Fund committed as of October 25, 2016

Challenges

- Time constraints; a multi-LDC effort adds to timeline for program development/deployment
- Perceived competition among organizations
- Minimal collaboration observed between larger LDCs (typically large LDC supporting small LDC)

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LDC / gas collaboration: Whole Home Pilot will address certain needs; challenges remain

Concern /Fair

Successes

- Positive feedback from potential customers/market on draft province-wide Whole Home Pilot program
  - Focus groups with potential customers indicated proposed gas/electric measure mix, comprehensive assessments are highly favourable; greater homeowner engagement in field trials of integrated assessment
- Two gas/electric utility programs jointly developed/in market
  - Toronto Hydro/Enbridge Smart Thermostat program
  - Toronto Hydro/Enbridge HAP pilot

Mitigation activities:

- Gas utilities have recently provided more senior level involvement in Whole Home contract discussions and committed to contracting by year end
- IESO working with Residential Working Group to identify opportunities for inclusion of Smart Thermostats in province-wide programs (collaboration with gas challenged by Union Gas not offering stand-alone Smart Thermostat program)

Challenges

- Contracting with gas for Whole Home Pilot program
  - Until recently there was a lack of senior level attention on file
- Challenge of coordination between gas utilities and 73 LDCs
- Challenge of provincial level coordination due to differences in program offerings between gas utilities
  - E.g., while Smart Thermostats can be offered through Whole Home (to those who get an assessment), they could also be offered as a one-off measure (e.g., through Heating and Cooling or as a separate rebate program, except that Union Gas doesn't have approval for a stand-alone Smart Thermostat program (Enbridge does) and each LDC would have to revise CDM Plan to include new program

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Good governance: streamlined process for new LDC program review implemented and working

Status:
Good/Fair

Successes

- IESO implemented new/streamlined program review process
  - 20 days for standard programs
  - 10 days for programs that meet key CFF policy objectives (LDC/gas collaboration, P4P, local system needs)
  - Three programs submitted under new process as of October 25 (two approved; one currently under review)
- New working group leadership/ membership has increased function of groups

Challenges

- While province-wide P4P and Whole Home programs have provided meaningful opportunities for stakeholder engagement, there remain calls from associations, vendors, other market actors for an increased role in conservation

Mitigation activities:

- IESO is engaging regularly with the retail, hospitality and agricultural sectors to provide input to the conservation programs
- Mid-term review advisory group will include customer representatives

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Status:
Concern

Integration with regional planning: Limited use of CFF resources for local system needs

Successes

- All LDC CDM Plans included content on how CDM plans would integrate with Integrated Regional Resource Plans (IRRP)
- IESO working with PowerStream and Toronto Hydro to undertake local studies of the conservation potential in the area around supply constrained substations

Mitigation activities:

- IESO supporting LDCs in development of new/enhanced programs with demand reductions
- As part of mid-term review, update framework requirements to encourage conservation programs/measures with electricity system/GHG benefits

Challenges

- CFF programs can reduce overall demand to address localized constraints identified through IRRP; however, LDCs have indicated that additional funding would be needed because they are focusing CFF budgets on meeting kWh targets
- IRRP still under development in many regions – options/alternatives to address local/regional needs not fully defined
- Programs that address local constraints via peak demand reductions are more likely to offset GHG emitting gas-fired generation
- Greater ratepayer value could be derived from CFF by strengthening provisions to drive programs/measures with peak demand reductions

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Local LDC programs: update and potential province-wide deployment

Program Name	LDC	Description (Status)	Consider for Province-wide?	Rationale for remaining local/ deploying province-wide
Business Refrigeration Incentive	PowerStream Enersource, THESL Horizon, H1 Brampton	Business Refrigeration Incentive – direct install no cost refrigeration efficiency measures	YES	Broad market and savings potential
Social Benchmarking Programs	HONI, PowerStream Horizon, THESL Hydro Ottawa	Social benchmarking programs	NO	Need additional data on savings potential
First Nations Conservation Program	HONI	Helps qualified on-reserve First Nation customers improve the energy efficiency of their homes and manage their energy use more effectively	NO	Limited market
Conservation on the Coast LI and SBL	Five Nations	Based on delivery of Home Assistance and Small Business Lighting programs to its customers on reserve	No	Limited market

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Local LDC programs: update and potential province-wide deployment

Program Name	LDC	Description (Status)	Consider for Province-wide?	Rationale for remaining local/deploying province-wide
PUMPsaver	THESL	Incentives to reduce energy consumed by closed-loop hydronic systems by using a VFD rather than a balancing valve	NO	Limited market
Instant Savings Program	CNP and Algoma	Provides a free clothesline at customer engagement events	NO	Limited savings potential
Adaptive Thermostat Program	THESL	Rebates for adaptive (smart) thermostats in collaboration with Enbridge	YES	Broad market/ savings potential/ gas and electric collaboration
HE Agricultural Pumping Program	NPEI and Hydro One	Encourages high-efficiency pumps through a point of sale rebate offered through a midstream approach	NO	Limited market

Options to ensure programs are available province-wide/deploy new province-wide programs

- Under existing CFF direction, LDCs choose which programs to offer, with exceptions for province-wide P4P and Whole Home programs
- Could potentially offer Adaptive Thermostat and other residential programs on a province-wide pilot basis under umbrella of Whole Home
  - Direction provides IESO with flexibility to select delivery partners and to define what program offering includes
  - Term and budget for pilot are flexible with option to continue as a full program at mid-term (would require new or amended direction to ensure program is available province-wide and to provide centralized administration)
- Province-wide deployment of any business programs (e.g., small business refrigeration) would require an amended direction **or** all LDCs to amend CDM plans

Industrial Accelerator Program update

Policy Objective	Performance measure(s)	Results as of October 25, 2016	October 2016 Status
Target	• 1.7 TWh target by 2020	• 0.18 TWh of savings in service as of September 30, 2016 • Additional 0.39 TWh under contract as of September 30, 2016	Good/ Fair
Budget	• $500M for 2015 to 2020	• $94M (19%) of budget committed + spent	Good/ Fair
Cost-effective resource acquisition	• Program is cost-effective	Cost-effectiveness as of September 30, 2016: • TRC: 1.8 PACT: 3.72 LUEC: $20/MWh • Request for proposals currently in market for P4P-based sales support for IAP	Good
Customer/market Satisfaction	• Broad program choice for customers	• Projects contracted/completed in all initiatives: • 16 energy managers contracted • 31 Retrofit projects contracted • 27 Process & Systems projects contracted	Good

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Industrial Accelerator Program update

Policy Objective	Performance Measure(s)	Results as of October 25, 2016	October 2016 Status
IESO/gas utility collaboration	• Coordinate/integrate with gas utilities where appropriate	• Working closely with gas utilities to co-ordinate customer outreach and share knowledge and insights into each other's programs	Fair
Governance	• Safeguards in place to mitigate ratepayer financial risk and underperformance • Streamlined/simplified administration to encourage greater participation	• Customer provides financial guarantee where IESO provides pre-project incentive payments; technical reviewer verifies project completion; EMV of all projects • Introduced streamlined Small Capital Project agreement • Further streamlined contract structure for participants to be available Q1 2017	Good
Integration with regional planning/ system need	• Incent measures with longer lifespans, peak savings, consider system value of measures	• Average measure life = 11 years • Have achieved 23.1 MW in demand savings through in-service projects	Fair

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Conservation mid-term review status

- Per March 2014 direction, CFF and IAP mid-term review must be completed by June 1, 2018
- Between June and October 2016, the IESO developed a draft plan and revised based on input from LDCs, MoE, and IESO Stakeholder Advisory Committee
- Draft mid-term review engagement plan was posted on November 2, along with Terms of Reference and invitation for members for Mid-Term Review Advisory Group
  - Proposals for membership are due November 23
  - First meeting of Advisory Group to be held in January 2017
- IESO issued an Request for Proposals (RFP) on October 28 for a vendor to support completion of review
- Outcomes of LTEP will be integrated into mid-term review
  - E.g., if LTEP target is adjusted, mid-term review options will look at corresponding adjustments to CFF and IAP targets

Conservation Mid-Term Review: Key Issues and Potential Solutions to be Examined

Challenge	Preliminary potential solutions to be examined *(other potential solutions to be developed)*	Considerations
Targets, budgets and cost-effectiveness • 8% target undefined in CDM Plans • Certain LDCs have less achievable potential in area than allocated target	*Option 1:* Target exchange among LDCs	• LDCs may be unwilling to pick up more target (with budget) even if APS indicated potential in their area
	Option 2: Open procurement of targets that LDCs cannot deliver (i.e., unassigned target or instances where an LDC's allocated target is lower than its achievable potential but LDC will not accept more target)	• Opportunity for non-LDC program delivery agents to participate in market • Can support province-wide availability of programs • Can help drive cost-effectiveness through competitive procurement of services providers (potential P4P approach)
Customer satisfaction • Lack of province-wide programs/lack of residential programs	*Option 1:* Standard suite of province-wide programs required to be delivered by all LDCs with potential for limited number of local programs	• Ensures certain programs are available province-wide (increased customer satisfaction) • Provides opportunity for increased coordination between gas and electric • Provides LDCs with some flexibility for local programs
	Option 2: Centralized delivery of certain programs (residential/business) with certain programs delivered locally (small business); Save on Energy/LDC branding and engagement opportunities for all programs	• Ensures certain programs are available province-wide (increased customer satisfaction) • Provides opportunity for increased coordination between gas and electric • Cost-efficiencies through centralized delivery • Maintains LDC role in customer engagement

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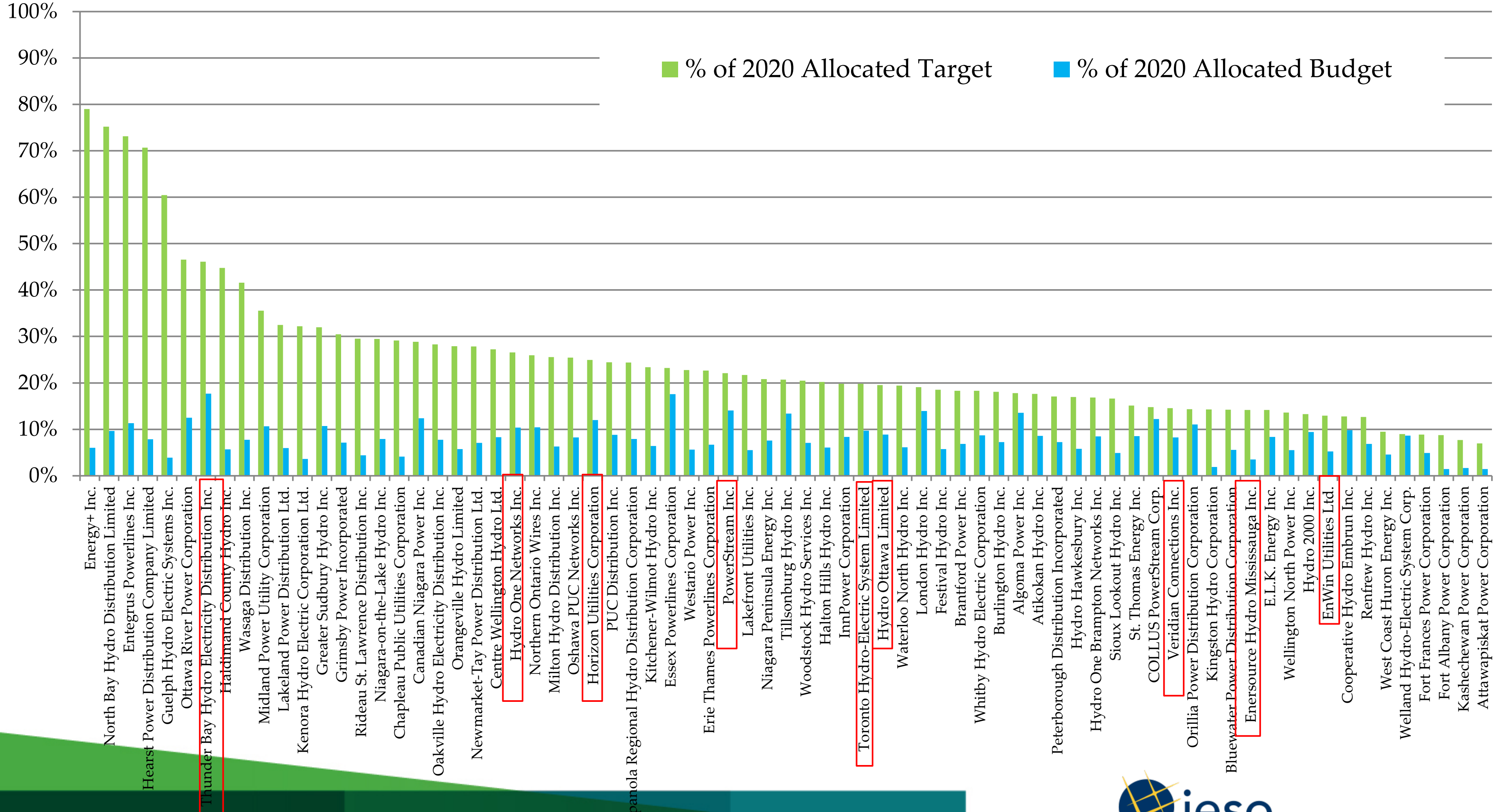
Conservation Mid-Term Review: Key Issues and Potential Solutions to be Examined

Challenge	Preliminary potential solutions to be examined *(other potential solutions to be developed)*	Considerations
Electric/gas collaboration • Differences between gas utility programs • Challenge of coordination between gas utilities and 73 LDCs	*Option 1:* Centralized coordination of certain residential/business programs between gas and electric (e.g., Whole Home, P4P) with mandate to gas utilities to deliver specific programs in coordination with electric program	• If successful, Whole Home Pilot could be extended • Any further program coordination between gas and electric would likely require mandate from OEB to gas utilities requiring coordination of specific programs
Integration with regional planning • LDCs focused on kWh targets (not peak demand reductions) • Integration with CCAP goals	*Option 1:* Reinstate peak demand reduction target	• Challenge with demand targets in 2011-2014 framework
	Option 2: Adjust targets/budgets to align with regional supply needs/congestion issues	• Focuses conservation efforts (and peak demand savings) to those regions with the greatest need. • Limits conservation efforts in regions of surplus and excess capacity (maintain residential portfolio offering) • CDM savings persist for average of 11 years; adjustments would need to factor in longer-term supply/demand outlook

Conservation Mid-Term Review: Key Issues and Potential Solutions to be Examined

Challenge	Preliminary potential solutions to be examined *(other potential solutions to be developed)*	Considerations
CDM integration with CCAP/GHG goals • Natural gas-fired behind-the meter generation (BMG) currently defined under CDM potentially increases GHG emissions in province • Several LDCs are relying on BMG to meet targets (including projects in capacity constrained zones)	*Option 1:* Replace gas BMG potential (1.2 TWh) within 7 TWh target with a GHG reduction target for each LDC (and/or extend definition of CDM to include net metering)	• GHG reduction target would *de facto* target peak demand reductions (natural gas for peak); could also enable CFF programs to target GHGs from other energy sources
	Option 2: Replace natural gas BMG potential (1.2 TWh) with an open call to the market for delivery of province-wide programs in areas where LDCs have not included such programs in their CDM Plans	• Same as Option 2 plus opportunity to ensure province-wide program availability and open market up to non-LDC program delivery agents (in addition to LDCs)

Appendix A. LDCs' progress against target and budget (% of CDM plan total) as of Q3 2016



Includes seven quarters of savings (2015 and Q3 2016).

Appendix B. LDC delivery of province-wide programs per CDM Plans as of October 15, 2016

Program Name	Number of LDCs Offering Program	Number of LDCs Not Offering Program
Retrofit Program	70	3
Coupon Program	70	3
Heating and Cooling Program	68	5
Small Business Lighting Program	64	9
Home Assistance Program	62	11
Audit Funding Program	61	12
High Performance New Construction Program	58	15
Process & Systems Upgrades Program	57	16
Energy Manager Program	50	23
New Construction Program	46	27
Monitoring & Targeting Program	26	47
Existing Building Commissioning Program	19	54
Unassigned Target (target gap)	54	19

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