CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

CCAC Oil & Gas Methane Partnership

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Climate and Clean Air Coalition

- OGMP: one of several initiatives under CCAC
- CCAC: High-level Govt/NGO coalition founded 2012
- Over 80 governments, international organisations, NGOs
  - Including US, UK, Norway, France, Russia…
  - World Bank, UNEP, WHO, Environmental Defense Fund

- Focus: short-lived climate pollutants (Methane, Black Carbon, HFCs)
  - Practical opportunities for immediate emissions reductions provide near-term climate benefits

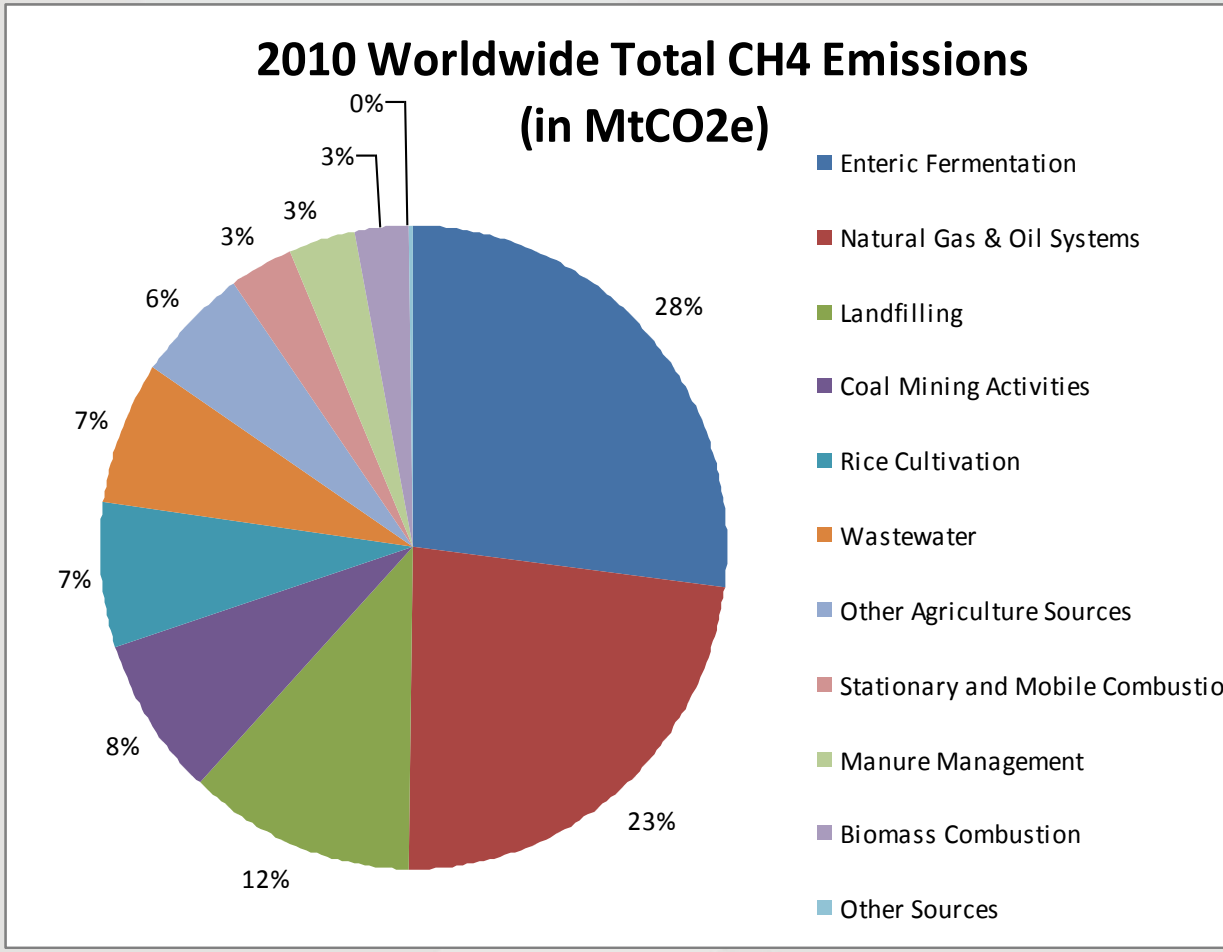
Methane

84 X more potent than CO2 over 20-years

Oil & gas sector considered largest human emitter after agriculture

IEA: upstream methane emissions one of 5 key climate priorities in energy sector

But data patchy



Designed through Broad Collaboration

- Many CCAC countries envision increased role for gas
- Stakeholder concern that methane emissions undermine climate benefits of gas
- Ministers gave CCAC mandate to create a voluntary mechanism
  - meets concerns of stakeholders
  - implementable by companies
- Developed with GMI, Natural Gas Star, World Bank
- CCAC consultations
  - Oil & gas companies -- IPIECA workshops and individually
  - NGOs, investor groups, reporting initiatives

Launch of OGMP

- Voluntary mechanism to help companies
  - Address emissions in a systematic manner
  - Demonstrate this systematic approach
  - Produce credible emissions data
  - Provide high-level recognition of leadership

- Launched at UN Climate Summit, September 2014

BG GROUP eni PEMEX ptt Group swn Southwestern Energy Statoil TOTAL

Focus on nine “core sources”

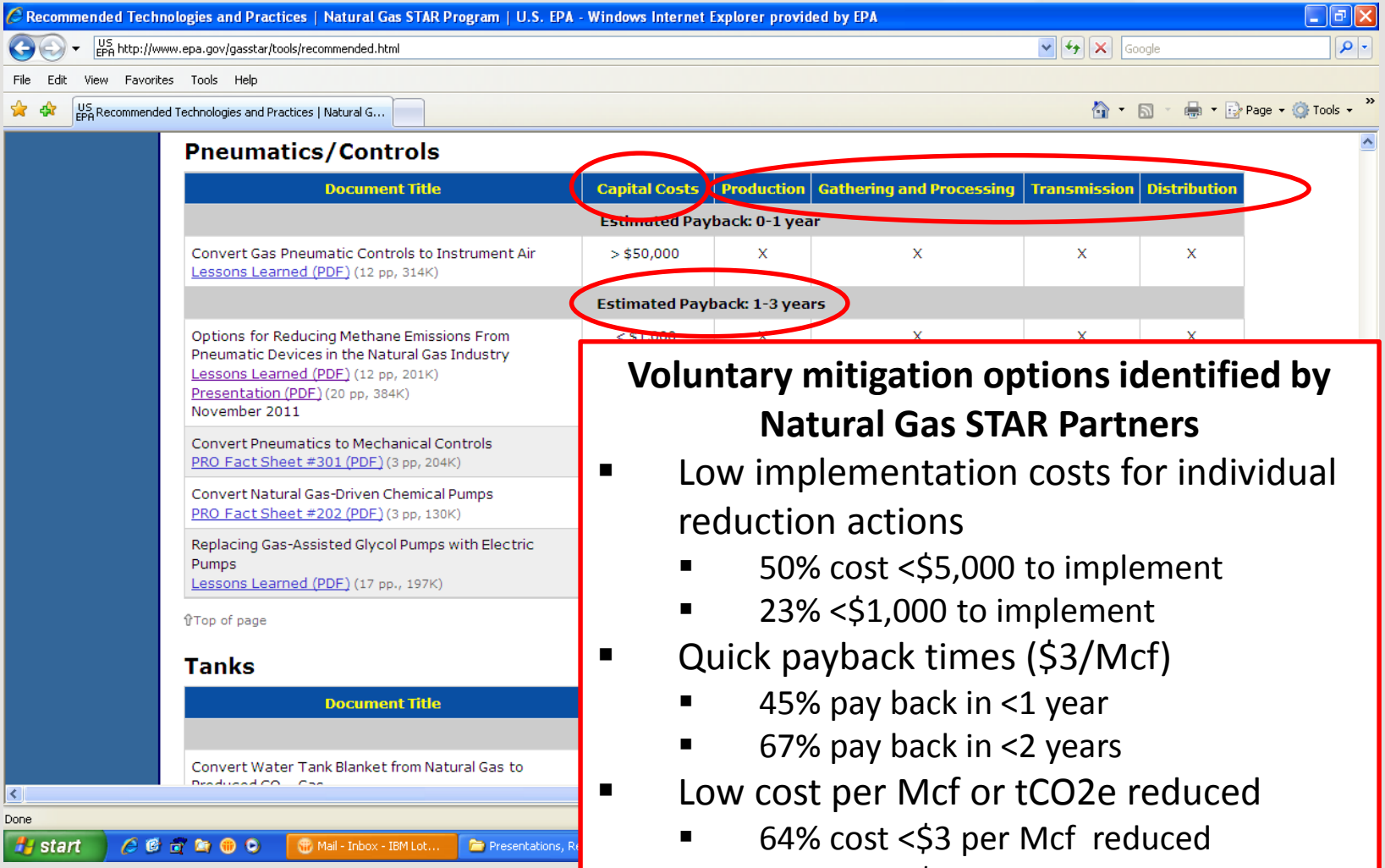
Technology Application Approach → 9 core **emission sources***

- Natural gas driven pneumatic devices, pumps
- Centrifugal compressors with wet (oil) seals
- Glycol dehydrators
- Well venting of liquids unloading
- Casinghead gas venting
- Fugitive equipment and process leaks
- Reciprocating compressor rod seal/packing
- Hydrocarbon liquid storage tanks
- Well venting/flaring during well completion for hydraulically fractured wells

- Identified through NGS experience and company consultations to account for much of upstream methane emissions

- Partner companies agree to survey for & address these 9 in participating operations

Over 50 Cost Effective Upstream Methane Reduction Opportunities



Voluntary mitigation options identified by Natural Gas STAR Partners

- Low implementation costs for individual reduction actions
  - 50% cost <$5,000 to implement
  - 23% <$1,000 to implement
- Quick payback times ($3/Mcf)
  - 45% pay back in <1 year
  - 67% pay back in <2 years
- Low cost per Mcf or tCO_2e reduced
  - 64% cost <$3 per Mcf reduced
  - 64% cost <$10 per tCO_2e reduced

Summary of Commitments (MoU)

- Implementation Plan after 6 months (confidential)
  - list of participating assets, expected pace
- Survey participating assets for 9 core sources
  - Determine state of control (ref TGDs)
  - For “unmitigated” sources
    - Quantify emissions
    - Evaluate cost-effective control options
    - Implement feasible opportunities
- Annual report to CCAC – confidential
- Company-specific public version of report

Important Features

- Up-front flexibility
  - Company selects participating assets
  - Company decides pace of implementation
  - Reporting begins following first full year
- Platform for learning
- Recognises prior actions
- Reporting format – aim to synchronise
- Any changes to OGMP are by consensus
- No membership fee

CCAC's Program Support

- Technical support & capacity building (surveys, emission calculations, evaluating opportunities)
- High-level recognition of efforts
  - U.N. Secretary General's Climate summit
  - COP21
  - Advocate with investor groups, NGOs
- CCAC governments can help address barriers

Partner benefits

- Credibility of public-private partnership
- Recognition of present and past efforts to control emissions
- Increased product recoverability and revenue
- Enhanced asset integrity -> increased operational and safety
- Harmonisation with other reporting and disclosure standards
- Best practice sharing and support;
- Development of a reliable industry data set

Implementation progress

- Technical Guidance documents
- Reporting templates, guidance, database
- Implementation Plans -> surveys
- First Annual Reports in Spring 2016
- In unique position for third-party studies outside US
- COP21 official side events

Thank you

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