



Chevron IndoAsia Business Unit Greenhouse Gas Reduction Initiatives

1st Asia Pacific Global Methane Initiative Oil & Gas Sector Workshop

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Presentation Overview

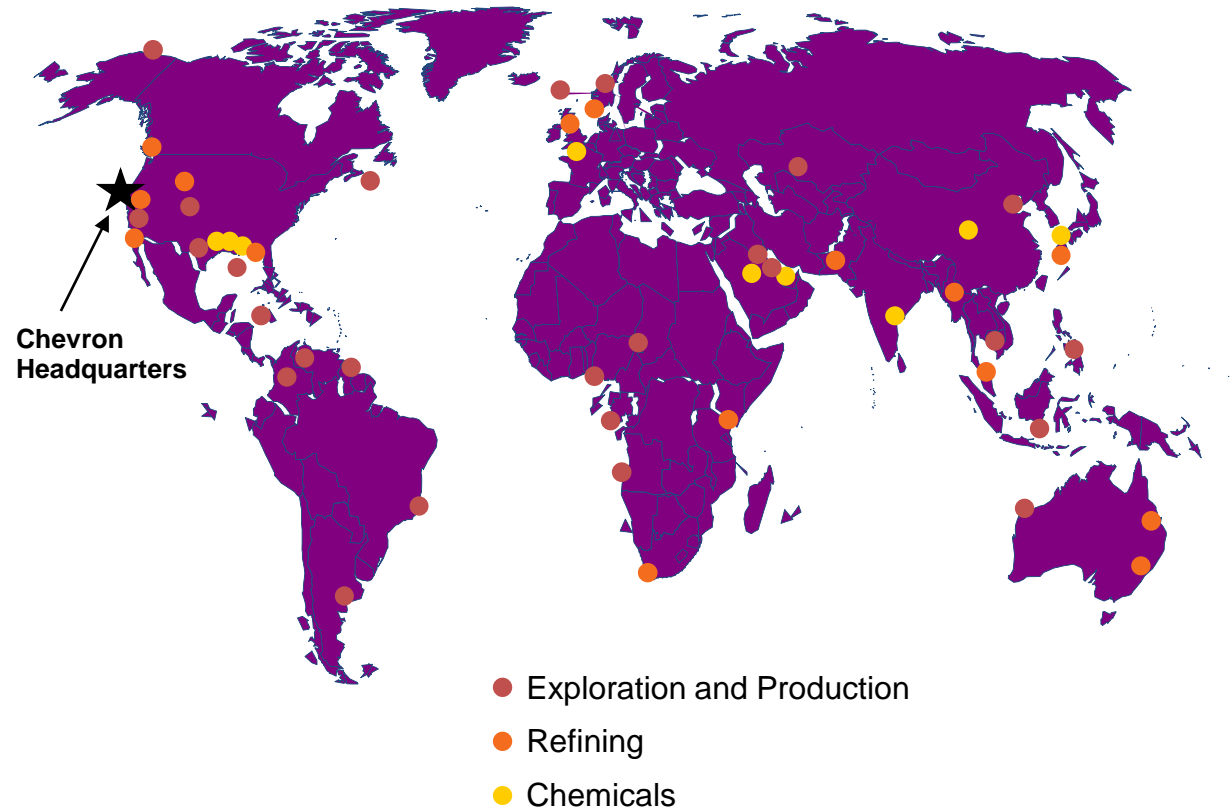
- Overview of Chevron IndoAsia Business Operation
- Greenhouse Gas (GHG) Management at Chevron
- Environmental Stewardship
- GHG Reduction Initiatives in Indonesia
- Path Forward

180 Countries

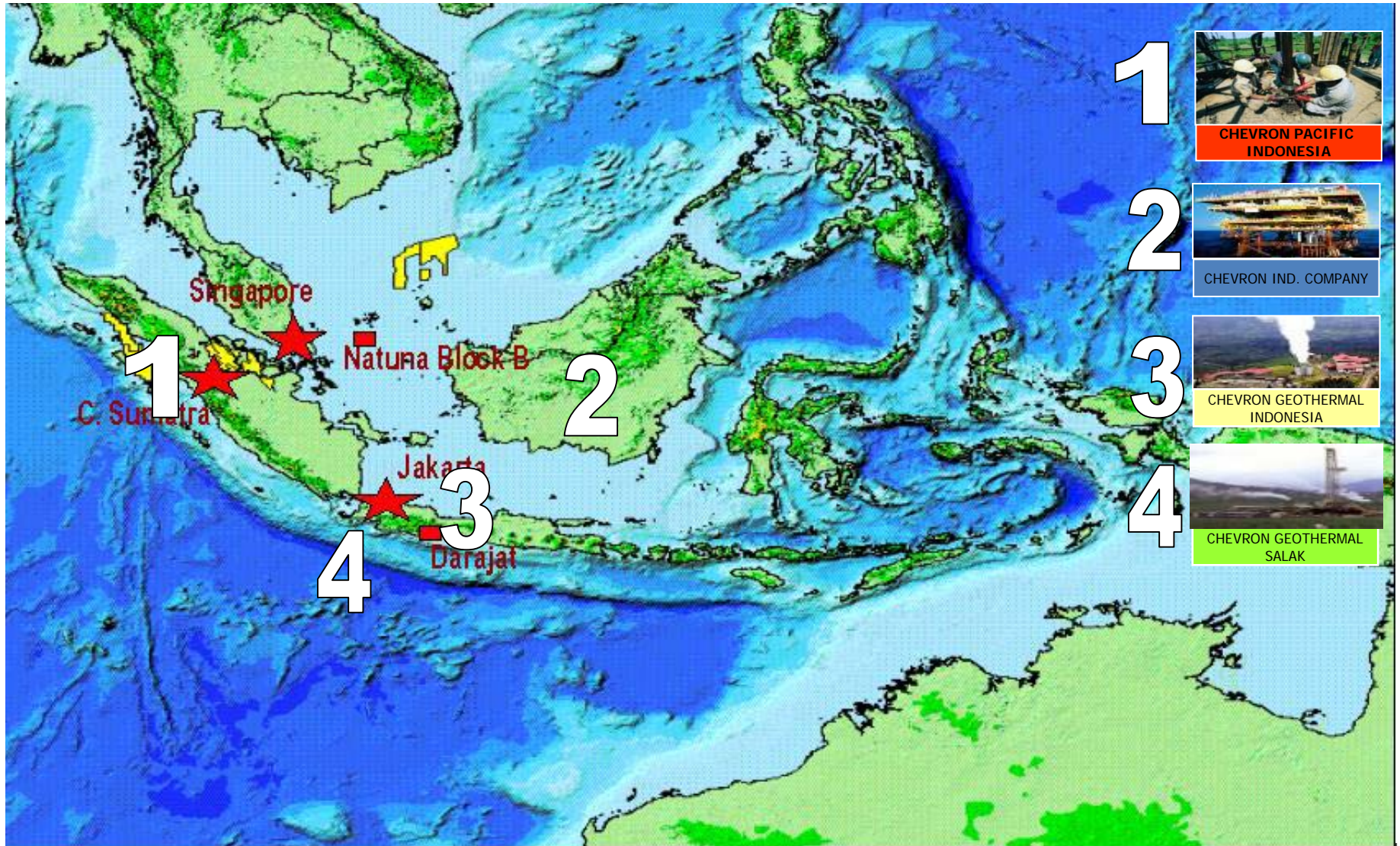
58,000
employees

2.76 Million
BOE net
production

We are a global energy company



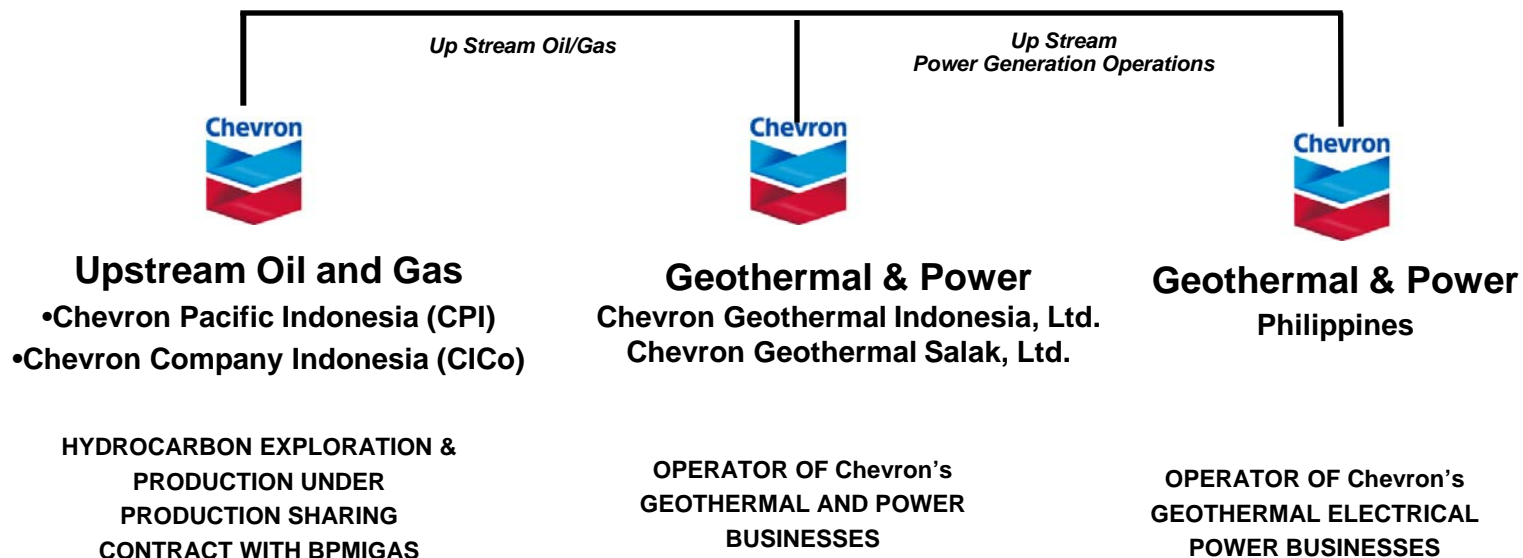
Chevron Operations



PARTNERS IN PROGRESS



IndoAsia Business Unit



Position Statement: *“At Chevron, we recognize and share the concerns of governments and the public about climate change. The use of fossil fuels to meet the world’s energy needs is a contributor to an increase in greenhouse gases (GHGs) — mainly carbon dioxide (CO2) and methane — in the earth’s atmosphere. There is a widespread view that this increase is leading to climate change, with adverse effects on the environment.”*

Seven principles for addressing climate change

- Global Engagement
- Energy Security
- Maximize Conservation
- Measured and Flexible Approach
- Broad, Equitable Treatment
- Enable Technology
- Transparency

Four-fold action plan

- Reducing emissions of GHGs and increasing energy efficiency
- Investing in research, development and improved technology
- Pursuing business opportunities in promising, innovative energy technologies
- Supporting flexible and economically sound policies, and mechanisms that protect the environment

Take aways:

- Integration of climate change into existing business strategies; no “climate change strategy”
- Business approach: Coordinated, low cost compliance

GHG Emissions Inventory System



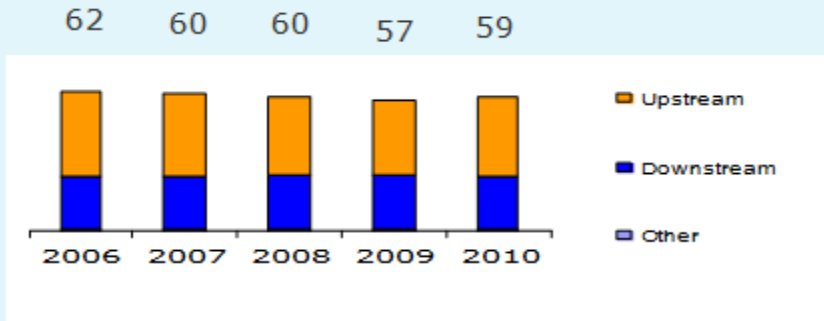
- Company-wide system (SANGEA) rolled out in 2001
- Consistent methodologies across Chevron
- Record of GHG emissions from all Chevron assets since 2002
- Basis for competitive benchmarking and mitigation planning
- Tri-annual third-party verifications
- New web-based system (CGERS) will have improved reporting capabilities and consistency with emerging regulatory requirements.



Energy efficiency continues to be critical for managing Chevron's future emissions growth



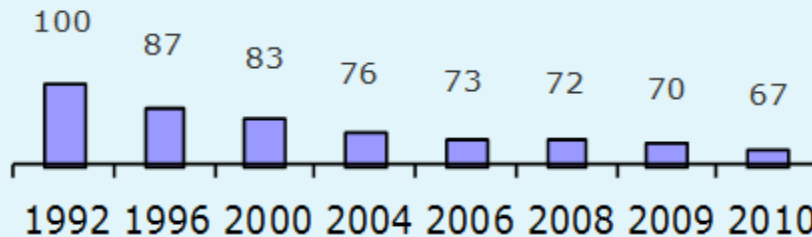
Greenhouse Gas Emissions (Million Metric Tons CO2 Equivalents)



Chevron energy efficiency improved 33% from 1992.

Improving the energy efficiency of our operations is increasingly important from an environmental and business perspective.

Chevron Energy Efficiency Improvement Since 1992



The total energy consumption of our operated assets in 2010 was 920 trillion Btu, at a cost of \$5.6 billion.

Note: 2006-2010 Equity share emissions do not include ChevronPhillips Chemical and Dynegy. 'Other' includes shipping, power & gasification, coal & corp. services.

Third-Party GHG Inventory Verification



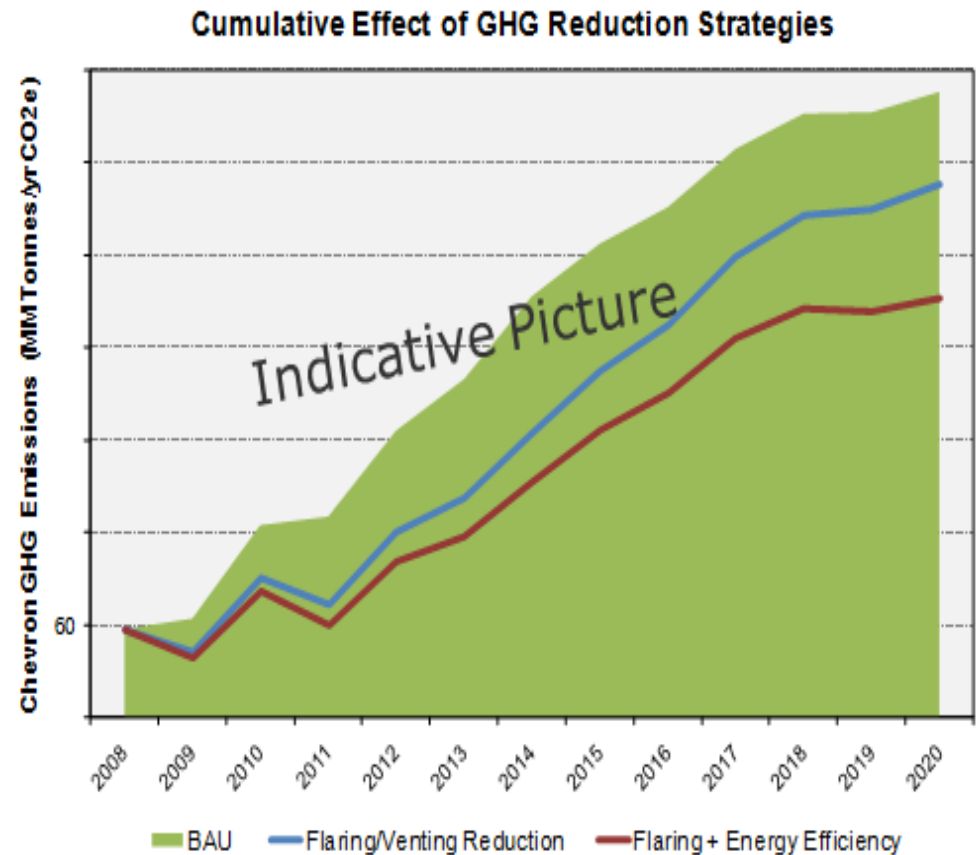
- In 2007, Det Norske Veritas (DNV) concluded that the 2004-2006 GHG estimates for our operated assets are accurate, and are consistent with leading voluntary reporting practices and our internal inventory protocol.
- DNV also identified several opportunities for us to improve our inventory system, which we are implementing. These include:
 - revising our GHG protocol to clarify and standardize requirements;
 - implementing a corporate-level internal audit procedure for GHG emissions reporting by our facilities;
 - developing local, documented Standard Operating Procedures for GHG management and reporting at our facilities
- Company verification completed in 2010 by Ernst & Young.



Long-Term GHG Forecast



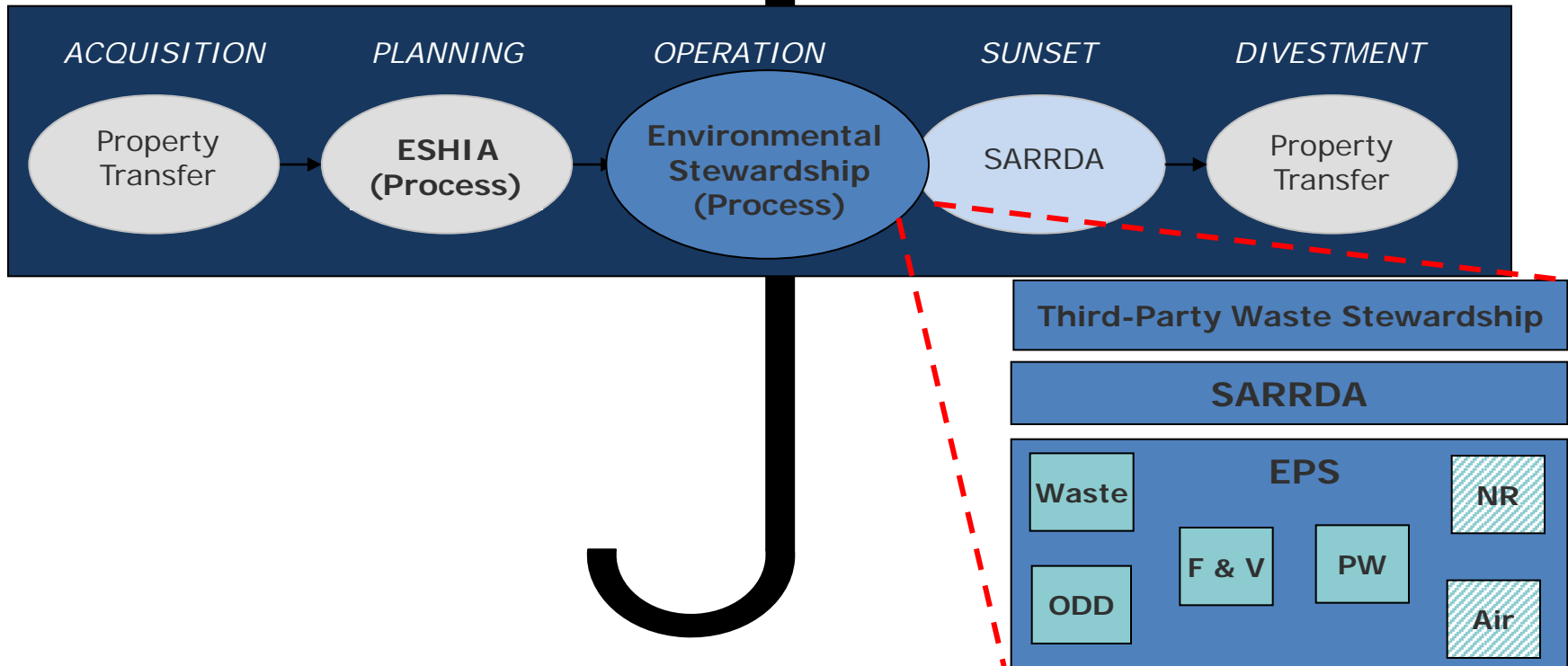
- Indicative picture of Chevron's future GHG emissions trend
- Based on Strategic Plan, SANGEA data and rough GHG emission factors
- Cases look at effects of mitigation options
- Serves as input to high level discussions on Chevron's approach to the GHG issue



Environmental Stewardship (ES)



Environmental Stewardship



Opportunities Arising from GHG Reductions



- Geothermal in West Java, Indonesia
- Project description
 - 200MW expansion at the Darajat geothermal power plant, through the addition of a new generating unit
 - New capacity will help meet electricity demands of Java, Madura and Bali, where supply shortages are anticipated
 - Darajat's geothermal resources are abundant, clean, renewable; will help Indonesia avoid ~650,000 tonnes per year of CO₂ emissions
- CDM Status: First credits issued in 2009 for 110MW Darajat Unit III Project
 - Contributed on CDM Energy Sectors development
 - Contributed more than 50% CDM CERs in Indonesia



Enhances Chevron's position as world's largest producer of geothermal energy

CGERS

Chevron's GHG and Energy Reporting System

Managing our GHG Footprint

CGERS is key to Chevron's Action Plan on Climate Change through measuring, and thus helping us to manage, our GHG emissions and energy use.

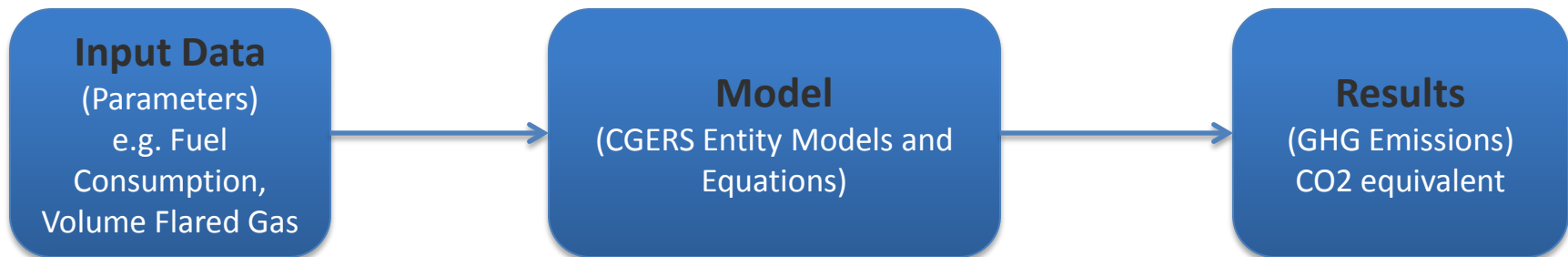


Calculation methodology

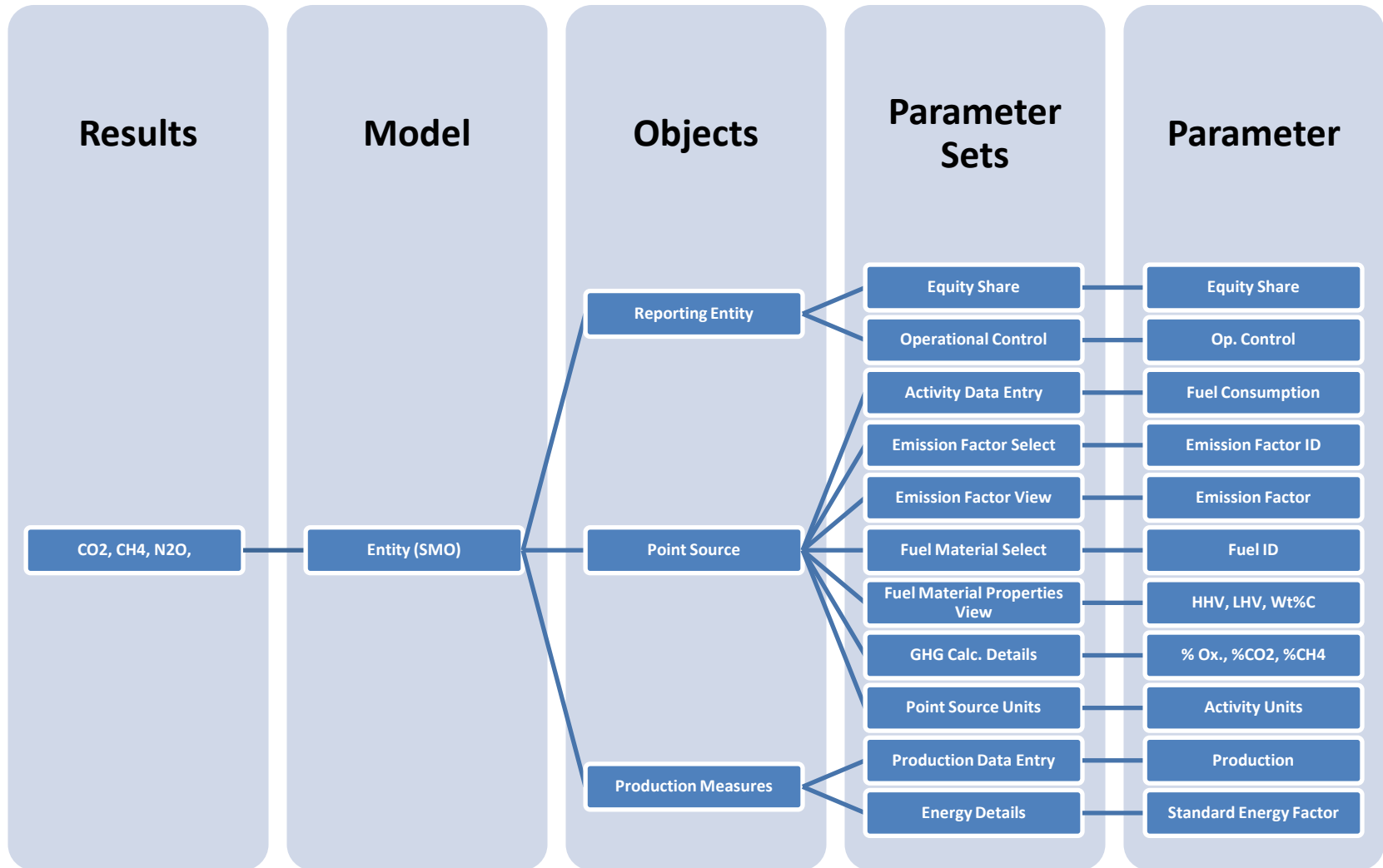
- API (American Petroleum Institute)
- CARB (California Air Resources Board)
- EPA (Environmental Protection Agency)
- EU ETS (EU Emissions Trading Scheme)
- NGERs (Australia's National Greenhouse and Energy Reporting)

Tiers

- Tier 1 (C) – default values
- Tier 2 (B) – usually higher heating value measured
- Tier 3 (A) – usually carbon content measured
- Tier 4 (A) – usually GHG gas is measured



CGERS Framework



GHG Emission Reduction Sumatera Operation Area PT. Chevron Pacific Indonesia



Flaring Reduction and Venting Elimination Programs



- New Project
 - No Continuous Flaring and Venting
 - GHG assessment included in capital projects
- Existing operations - Ongoing effort to eliminate continuous flaring and venting operations
 - Continuous Venting eliminated at Heavy Oil and Sumatra North GS stations
 - Continuous Venting at well casing eliminated at Sumatra South Operations
 - Ongoing effort to eliminate continuous venting at well casing in Sumatra North operations and 2 GSs at Sumatra South
 - Ongoing effort to eliminate continuous flaring

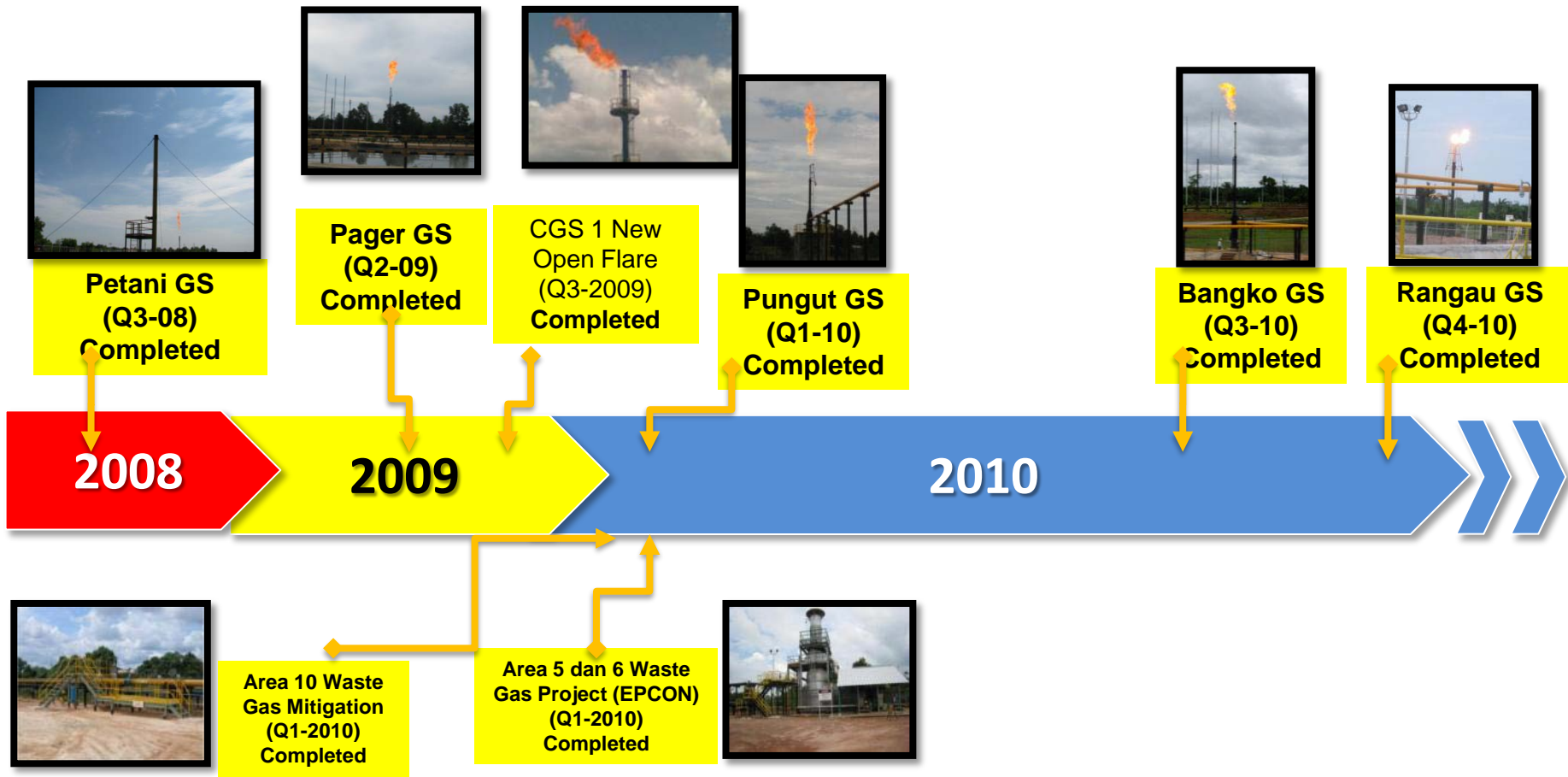
Emission Management Project Sumatera Oil and Gas Operation



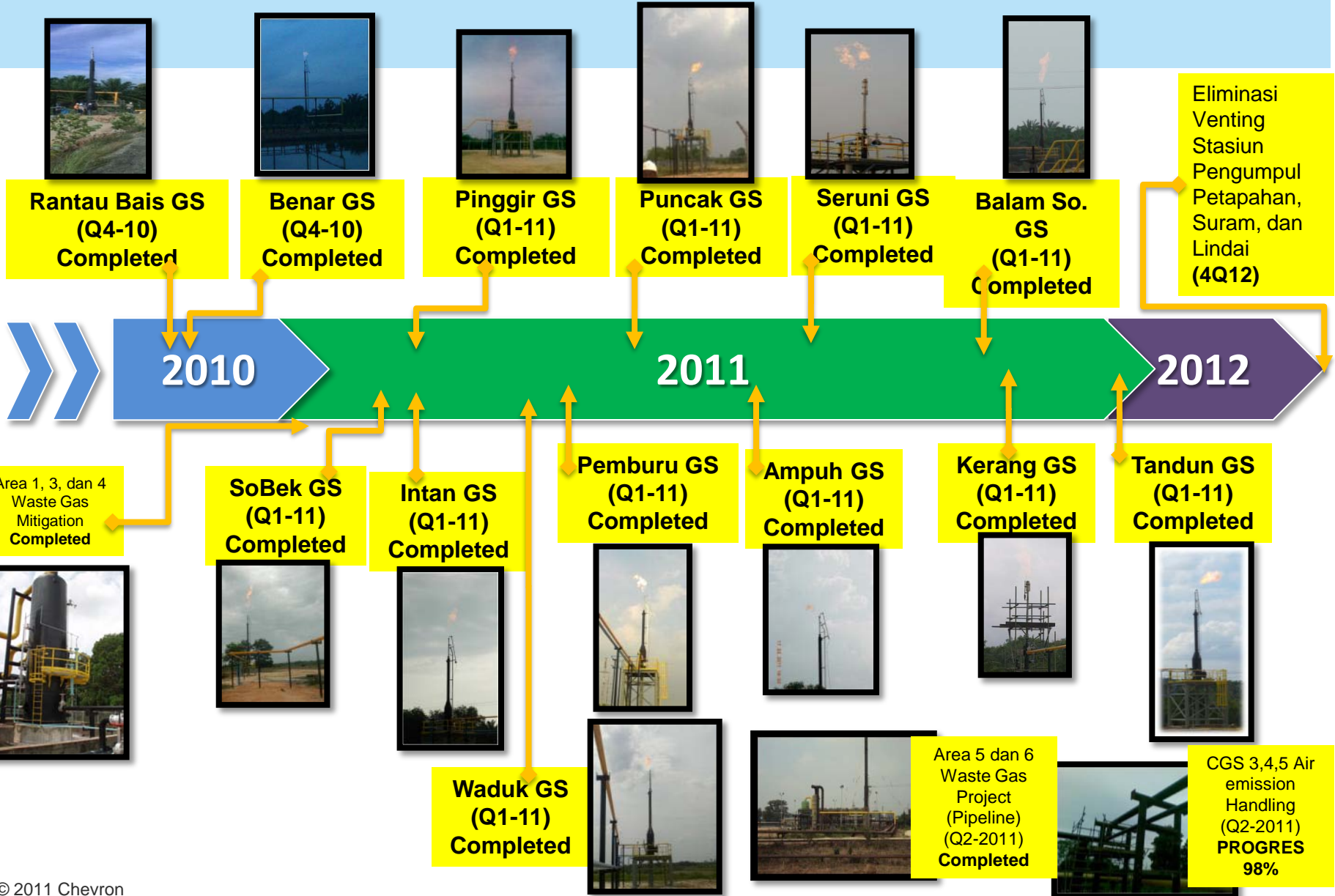
Environmental Projects	Numbers of Projects	Numbers of Completed Project as of August 2011	Total Project Cost (US\$)	Completion Target
Air Emission Management Projects * Two of the emission projects may go beyond 2012	32	27 (91%)	50 MM	4Q12 *



Zero Venting Project - 1



Pencapaian Proyek Zero Venting -2



Emission Reduction



Project Location	Number of Projects	Project Completion	Progress	Emission Reduction Estimation
Heavy Oil (HO)	5	4	99.6%	<ul style="list-style-type: none"> • Reduction: <ul style="list-style-type: none"> ▪ H2S: 693 ton/year ▪ Hydrocarbon: 43 ton/year • Total Reduction <ul style="list-style-type: none"> ▪ H2S: 946 ton/year ▪ HC: 75 ton/year
Sumatera Light South (SLS)	2	0	83%	<ul style="list-style-type: none"> • Reduction <ul style="list-style-type: none"> ▪ Hydrocarbon: 49 ton/year ▪ H2S: 0.5 ton/year
Sumatera Light North (SLN)	23	23	100 %	<ul style="list-style-type: none"> • Reduction <ul style="list-style-type: none"> ▪ Hydrocarbon: 6024 ton/year ▪ H2S: 12 ton/year

Energy Reduction Initiatives

- Good Reservoir Heat Management Practice
- Latent Heat Delivery Target
- Steam Generator Optimization
- Steam Distribution Optimization
- Steam Generator Split flow
- High Water Cut Optimization

Other Initiatives

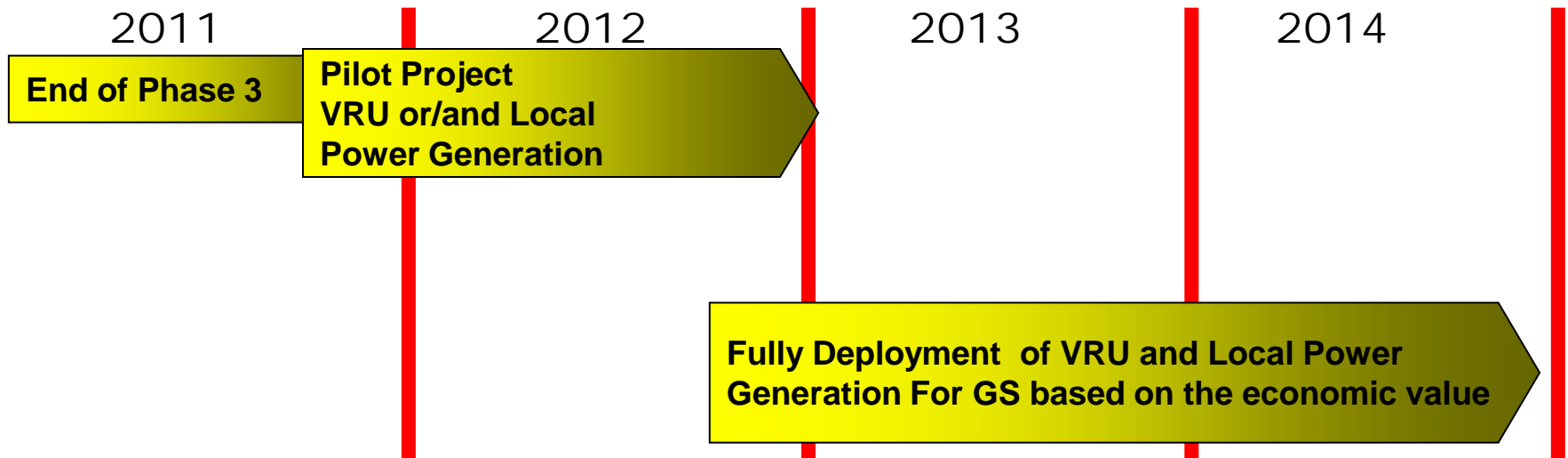
- Increase Environmental Awareness

- Modifications to Operation

Our Journey towards GHG Reduction

- ❑ Incorporating GHG Considerations Into Capital Projects
- ❑ Explore Geothermal Opportunities
- ❑ Reducing Emissions and Improving Efficiency
 - Continual Effort in Elimination of Continuous Flaring and Venting
 - Develop and Deploy Leak Detection and Repair Program (LDAR)

Flaring Reduction Emission Projects Sumatra Light North



Terima Kasih



Harmonious Living with Nature

What's good for the environment is good for business and the future