

# Loyola Climate Action Plan

Carbon Neutral by 2025

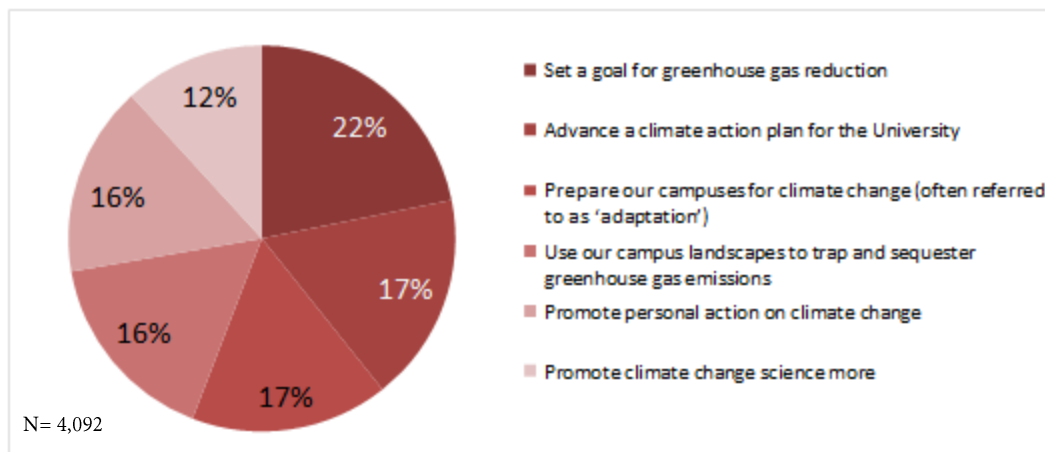


# Background

- In 2012, Fr. Michael J. Garanzini, S.J. signed Loyola onto the American College and University Presidents' Climate Commitment.
  - 685 Signatories to date
    - 539 Climate Action Plans submitted
    - Over 2,500 Greenhouse Gas Inventories submitted
- This commitment states that Loyola will take the following steps;
  - Initiate the development of a comprehensive plan to achieve climate neutrality
  - Initiate two or more tangible actions to reduce greenhouse gases
  - Make the action plan, inventory and periodic progress reports publicly available



# What should Loyola do to address Climate Change?



## Key themes regarding Climate Change were:

- Lack of knowledge on the basic science of climate change
- Lack of understanding on what an individual or organization can do to address the issue
- Strong need to have a plan and associated goals to reduce emissions
- Interest in model projects that link research to problem solving

N= 415

- Results of 2012/2013 Survey with over 3,200 respondents
- Quantitative and qualitative feedback on climate priorities for Loyola
- Complete comments are available from [LUC.edu/sustainability](http://LUC.edu/sustainability)

# Climate Change and Social Justice

- Loyola's emissions contribute to climate change
  - Inequitably experienced by vulnerable people around the world
  - It is much more efficient to prevent problems (reduce emissions) than respond to catastrophes
- Loyola's students and values address and mitigate the impacts of climate change
  - Our graduates will be the next generation of problem solvers but they need to see examples of solutions
- This will support Loyola's 2015-20 Strategic Plan

# Loyola CAP Working Group

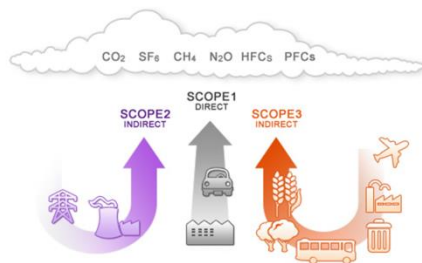
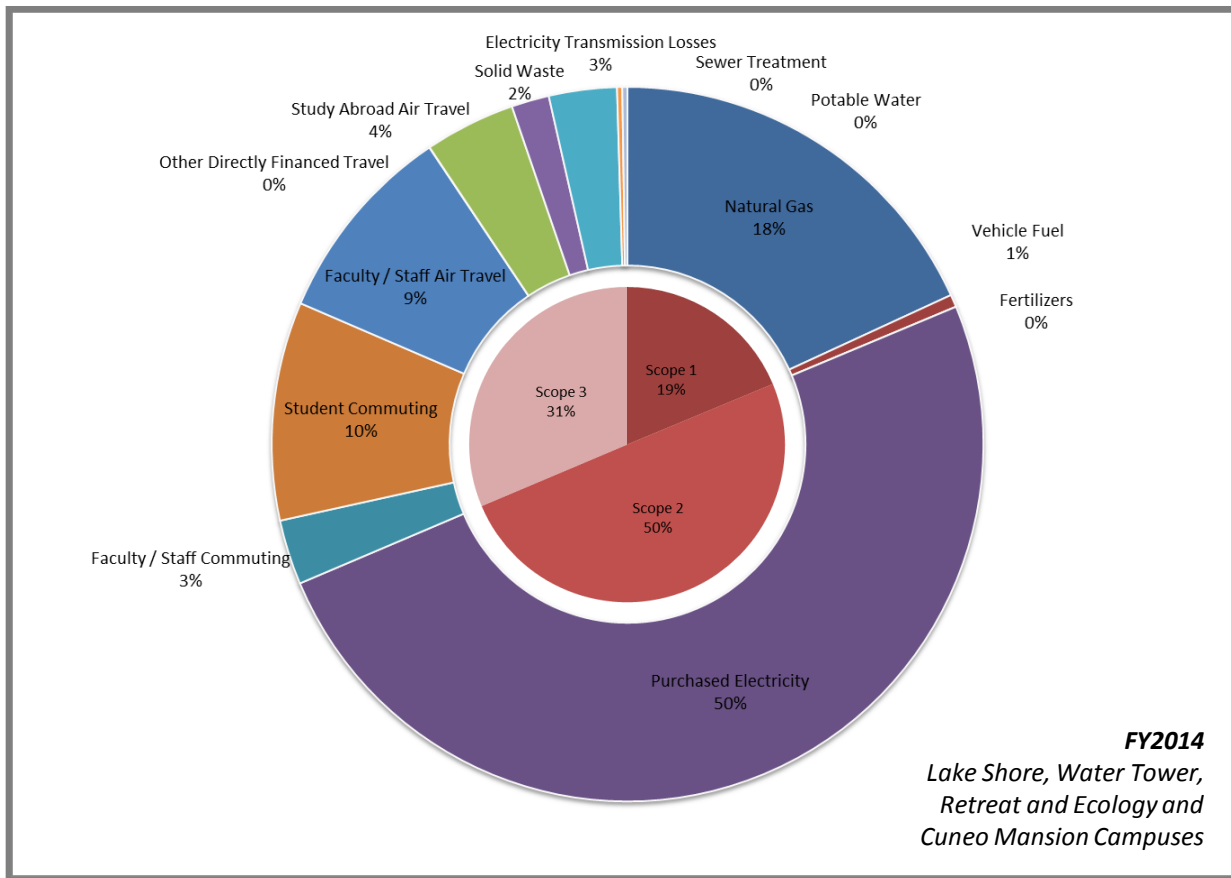
- David Beall, Capital Planning
- Jared Brocklehurst, SGLC
- Jennifer Clark, Community Relations
- Kelly Hof, Student Environmental Alliance
- Tim McGuiriman, Campus Services
- Jack McLean, Student Development
- Ping Jing, Institute of Environmental Sustainability
- Sam Perry and Bryana Deak, Finance Office
- Kana Wibbenmeyer, Facilities

Administered by Institute of Environmental Sustainability – Aaron Durnbaugh, IES Interns – Lauren Standal, Shayna Milstein

# Working Group Schedule

- October 2014– Meet with representatives of the administration to discuss CAP and identify working group members. Presented at LUC Cabinet and participants identified.
- 1<sup>st</sup> Meeting – December 10
  - Agenda – kick off and introduction, share other example CAPs
- 2<sup>nd</sup> Meeting – January 15
  - Agenda
    - Presentation on LUC’s greenhouse emissions and opportunities / challenges to reduce emissions or procure offsets
    - Presentation on LUC adaptation and discussion of opportunities
- Mitigation Meeting – January 20
  - Agenda – detailed conversation about mitigation targets with Facilities and Elara
- 3<sup>rd</sup> Meeting – February 12
  - Agenda – presentation on draft CAP, discussion on format, goals and targets
- Check-in on Working Group Progress with administration – February 25<sup>th</sup>
- 4<sup>th</sup> Meeting – March 10<sup>th</sup>
  - Agenda – feedback on final CAP, finalize plan and adoption schedule
- Presentation to University Senate – March 20<sup>th</sup>
  - *“The University Senate endorses the development of Loyola’s Climate Action Plan and planning towards carbon neutrality.” Vote: 21-1-0 (Yes – Abstain – No)*
- Presentation to University Cabinet – 4/21/15
  - Support from Cabinet with recommendation to the President to adopt
- Finalization and Publishing to ACUPCC – 6/12/15

# Loyola's Emissions



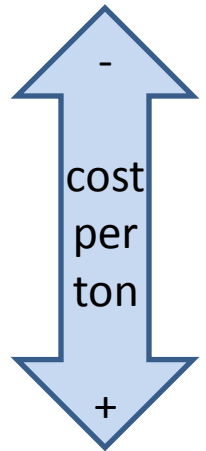
**Scope 1** – Direct, on-campus emissions (e.g. vehicles, boilers)

**Scope 2** – Off-campus but directly linked to our actions (e.g. purchased electricity)

**Scope 3** – Indirect emissions that may be supported but not directly controlled by the university (e.g. commuting, air travel, landfill management)

# Working Group Process

- Explored potential actions that reduce our greenhouse gas emissions most cost-effectively
  1. Energy Efficiency
  2. Off-campus Renewable Energy (purchase electricity from clean sources with Renewable Energy Credits)
  3. On-campus Renewable Energy (Geothermal, Solar Thermal, Solar Photovoltaic, Wind Turbine)
  4. Carbon Offsets (purchase offsets for activities we can't reduce/ have alternatives for)
  5. Carbon Sequestration
- Explored other activities that prepare the campus for a changed climate
- Explored other activities that promote the teaching, research and engagement around climate change
- Determined primary institutional ownership for Scope 1 & 2 emissions only but encouraged the development of programs and strategies for individuals to take action to reduce Scope 3 emissions
- Primary considerations:
  - Emissions reduction
  - Cost effectiveness or return on investment
  - Visible commitment to addressing energy and climate change
  - Alignment with academic and operational priorities





# CAP Actions Summary

- Continue to reduce energy related emissions through retrofits, new construction, policies and behavior-focused programs
  - Goal: 10% reduction in total energy use
    - Included in existing capital and operations budgets
- Construct on-site renewable energy
  - Goal: 4% reduction in natural gas, 1% reduction in electricity
    - Each installation would be considered on its own economic merits based on Return on Investment
- Purchase renewable energy credits and carbon offsets
  - Goal: 100% of electricity in RECs and 100% of natural gas in offsets by 2025
    - Would provide clean energy for activities that cannot be reduced
- A campus and community that is well prepared for changing conditions under climate change
  - Goal: Incorporate climate forecasts into planning, especially capital projects
    - Would be considered as part of project management process
- Support the teaching, research and outreach of climate science and adaptation
  - Goal: Annual programs that engage the Loyola community
    - Would provide support to students and faculty addressing climate change topics
- A clear accounting on progress and challenges to reach carbon neutral by 2025
  - Goal: Annual reporting on greenhouse gas emissions and engagement programs

# Energy Efficiency Actions

- Energy Use Goals by building use and age
  - 10% savings<sup>1</sup>.
- Vehicle Fleet Efficiency Goals
  - No cost, potential savings<sup>2</sup>.
- Green Purchasing Policy
  - No cost, potential savings<sup>3</sup>.
- Water Efficiency Goal
  - No cost, significant savings<sup>4</sup>.

1. Annual energy budget of \$5.6 M (avg. last 3 years). 10% is \$560,000 / year

2. Vehicle Fuel - \$175,000 in FY14. Conservative reduction of 10% would save \$17,500

3. Annual Office Supply Costs are \$842,468. Paper alone is \$156,045. Conservative reduction of 10% would be \$15,600

4. Water bill for Lakeside Campuses in FY14 was \$831,479. Conservative reduction of 10% would be \$83,000 per year.

# Energy Efficiency Con't

- Temperature Set Policy<sup>1</sup>.
  - No cost, Savings included in Energy Efficiency
- Equipment Trade-in Program<sup>2</sup>.
  - 3 year program, Cost Neutral
- Anti-Idling Policy<sup>3</sup>.
  - No cost, No savings
- Energy Behavior Program<sup>4</sup>.

*1. Summer and Winter temperature set policy would allow Facilities to communicate energy-use expectations for heating/cooling.*

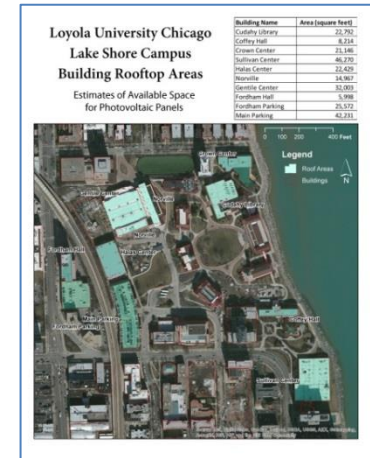
*2. Could target highest Return on Investment equipment such as refrigerators and freezers. Could include water efficiency and address aspirators and other equipment as well. ROI estimated at under 4 years for refrigerators and freezers.*

*3. Could match City of Chicago's ordinance (max. of 3 minutes)*

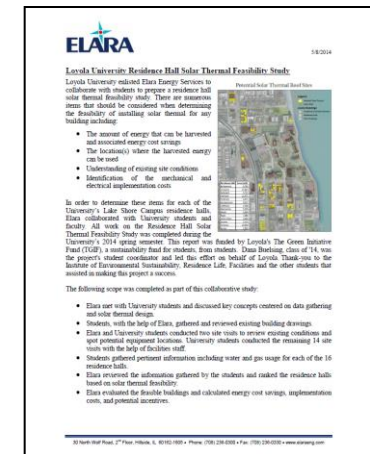
*4. New position working with Facilities or Sustainability on personal and departmental efforts would target most energy inefficient activities and facilities to conserve energy*

# On-site Renewable Energy Actions

- Commit to investment into renewable energy systems on campus
  - Goal is both financial and highly-visual demonstration
- Will explore the feasibility of the following systems, costs, research and return on investment
  - Solar Thermal
  - Photovoltaic
  - Small Wind



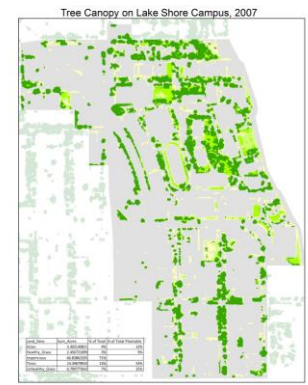
Student study of available PV rooftops at Lake Shore Campus



Student Solar Thermal Feasibility Study

# Carbon Sequestration

- Inventoried trees at Lake Shore, Cuneo and Retreat and Ecology Campuses
- Used multiple methods to estimate annual carbon sequestration rates by tree
  - Lake Shore Campus = 3 – 8 Metric Tons CO<sub>2</sub> (n=535 trees)
  - Retreat and Ecology Campus = 20 – 32 Metric Tons CO<sub>2</sub> (3,503 trees)
  - Cuneo Mansion = 14 – 22 Metric Tons CO<sub>2</sub> (2,399 trees)
- Will identify opportunities to increase on-site sequestration possibilities through infrastructure and landscapes at all campuses



# Renewable Energy Credits and Offsets

- Efficiency and on-site renewables will only get us so far
- To attain carbon neutrality, we will need to purchase clean power OR offset our emissions
  - Renewable Energy Credits are purchased and ‘retired’ as proof of green power
  - Carbon Offsets claim the carbon benefits of projects locally or around the world
- Will explore options to purchase all electricity from RECs and all Natural Gas emissions from offsets by 2025

Annual Green Power Usage (kWh)	GP % of Total Electricity Use*	Green Power Resources	Providers (listed in descending order by kWh supplied to Partner)
<b>1. University of Pennsylvania</b>			
200,183,000	51%	Wind	Renewable Choice Energy*, Community Energy*
<b>2. Georgetown University</b>			
152,370,500	130%	Various	Hess Energy Marketing*
<b>3. University of Oklahoma</b>			
134,898,600	76%	Wind	Oklahoma Gas & Electric
<b>4. The Ohio State University</b>			
133,631,369	23%	Wind	Blue Creek Wind Farm LLC
<b>5. Carnegie Mellon University</b>			
115,637,466	98%	Solar, Wind	3Degrees*, NextEra Energy Resources*, On-site Generation
<b>6. Oklahoma State University</b>			
100,360,039	71%	Wind	Oklahoma Gas & Electric
<b>7. Northwestern University</b>			
96,720,800	38%	Solar, Wind	3Degrees*, On-site Generation
<b>8. Drexel University</b>			
96,678,000	100%	Solar, Wind	Community Energy*
<b>9. University of Utah</b>			
85,926,100	28%	Solar, Wind	3Degrees*, Rocky Mountain Power*, On-site Generation
<b>10. University of Tennessee, Knoxville</b>			
80,020,000	32%	Biogas, Small-hydro, Solar, Wind	Tennessee Valley Authority*, On-site Generation

# Climate Preparedness

- Also referred to as Resiliency or Adaptation, Loyola recognizes that climate change is happening and is working to prepare our campuses for the forecasted impacts.
- Two DRAFT reports outline the work having been completed to date to prepare the built and natural infrastructure and the Loyola community for climate change.
- Primary activities to be addressed at Loyola
  - Energy Efficiency
  - Stormwater Management
  - Extreme Weather (esp. Heat Emergencies)
  - Ecosystem resilience
  - Consider climate in long-term projects



# Teaching and Research

- We have considerable faculty doing work on climate related topics already
  - IES, Biology, Communications, Business, Medicine, etc.
- Climate change is addressed in classes and disciplines all across Loyola but not collected in a single place
- Short-term effort to support climate research (both students and faculty) and teaching (faculty only)
  - Incentive program to be administered by Office of Research Services, Faculty Center for Ignatian Pedagogy and LUROP
  - Provides information resources to support teaching and research including data, teaching modules, local case-studies and resources

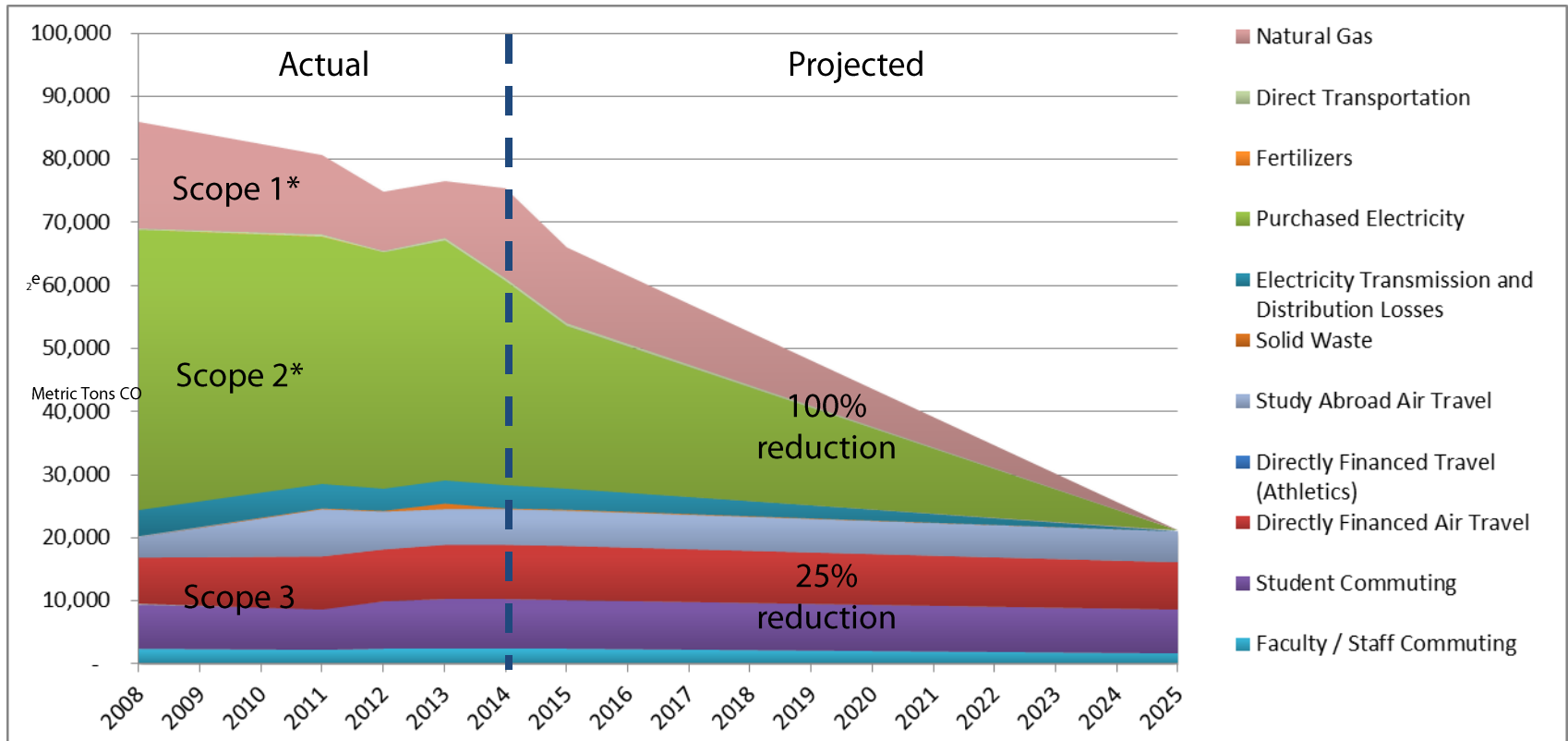


# Accountability and Communications

- Annual reporting on our progress
  - Continued annual GHG reporting
  - Annual public meeting
  - Annual presentation to Cabinet
  - Annual presentation to Senate
- Communications campaign to connect all our climate change work

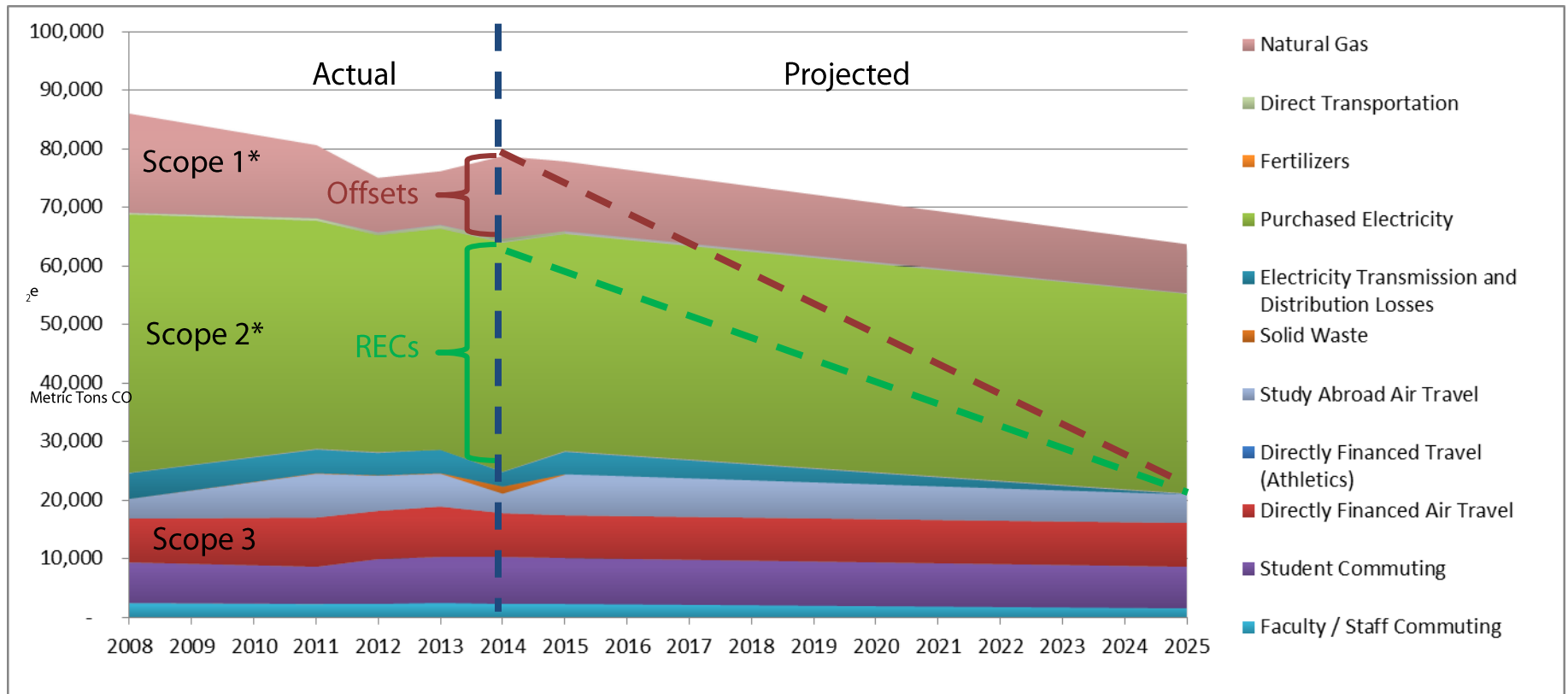
# Carbon Goal - 2025

- Carbon neutral for Scope 1 & 2 emissions\*
- 25% reduction for Scope 3 emissions
- Includes REC and Carbon Offsets



# Carbon Goal - 2025

- Carbon neutral for Scope 1 & 2 emissions
- 25% reduction for Scope 3 emissions
- Energy Efficiency targets displayed
- RECs and Carbon Offsets shown as overlay



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Sustainability at Loyola is driven by our Jesuit tradition of social justice, our service to humanity, and our role as an institution of higher education.

It is embodied in an educational experience for our students and activities that seek to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

We are committed to an inclusive process considering social, economic and environmental impacts and exemplified in a transformative education for our students.

**To learn more visit [luc.edu/SustainLoyola](http://luc.edu/SustainLoyola)**