

## Scoping Plan Health Benefits

- AB32 requires the ARB to assess environmental and public health benefits of the Scoping Plan
- Focused on air quality improvements and resulting public health benefits

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## Other Environmental Analyses

- CEQA document to be released with Proposed Scoping Plan
- Additional analysis during development of regulations, including market-based compliance mechanisms

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## Key Findings

- Scoping Plan measures will significantly reduce air pollution related premature deaths
- In 2020:
  - 400 fewer premature deaths statewide
  - 200 fewer in the South Coast Air Basin
  - 11 fewer in the Wilmington area

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## Other Health Benefits

- Fewer hospital admissions for heart and lung conditions
- Fewer cases of acute bronchitis, asthma, and respiratory symptoms
- Fewer work loss and restricted activity days
- Positive lifestyle changes with land use changes

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## Analysis Approach

- Statewide impacts
- Region with significant exposure to air pollutants – South Coast Air Basin
- Local community – Wilmington area

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## Analysis Steps

- AQ improvements from existing program
- Statewide GHG reductions
- Corresponding criteria pollutant reductions
- Apportion to regions by criteria pollutant levels
- Apply State and region-specific health impact correlations

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## GHG Reduction Estimates

- Transportation:
  - Avoided fuel combustion
  - Electrification
  - Avoided upstream emissions
- Electricity and Natural Gas:
  - Avoided electricity generation, natural gas combustion
  - Replacement with zero-emission sources
- Industry:
  - Avoided fuel combustion

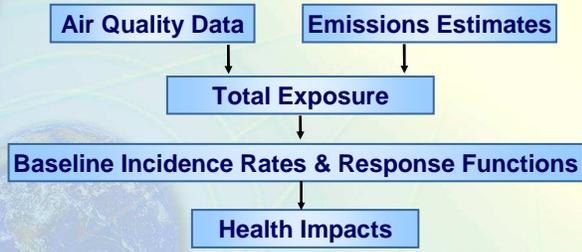
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## Health Effects Methodology

- Developed and used by U.S. EPA
- Endorsed by health organizations
- Used to assess ambient air quality standards, diesel PM control measures and Goods Movement Plan
- Includes California-specific health studies
- Peer reviewed

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## Health Methodology Overview



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## Health Endpoints

- Premature death
- Hospital admissions: respiratory
- Hospital admissions: cardiovascular
- Acute bronchitis
- Asthma/other respiratory symptoms
- Work loss days
- Minor restricted activity days

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## State Level Impacts

- Greatest reductions come from:
  - energy efficiency and conservation,
  - goods movement efficiency, and
  - the renewable portfolio standard
- 56 tpd NO<sub>x</sub>, 12 tpd PM<sub>2.5</sub> reduced in 2020

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## Statewide Health Benefits

Health Endpoint	Existing and 2007 SIP	Scoping Plan
Premature deaths	3,700	400
Hospital admissions respiratory	770	84
Hospital admissions cardiovascular	1,400	150
Asthma/respiratory symptoms	110,000	11,000
Acute bronchitis	8,700	910
Work loss days	620,000	67,000
Restricted activity days	3,600,000	380,000

Mean number of cases avoided in 2020; uncertainty intervals range within 20-70 percent of the mean benefit.

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## Regional Level Analysis

- South Coast Air Basin example
- Stationary source reductions reflect basin's share of existing statewide emissions at sector/process level
- On-road mobile reductions apportioned by VMT
- Scoping Plan provides additional health benefits over existing program and 2007 SIP

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## South Coast Health Benefits

Health Endpoint	Existing and 2007 SIP	Scoping Plan
Premature deaths	2,500	200
Hospital admissions respiratory	530	42
Hospital admissions cardiovascular	980	78
Asthma/respiratory symptoms	74,000	5,900
Acute bronchitis	6,100	490
Work loss days	440,000	35,000
Restricted activity days	2,500,000	200,000

Mean number of cases avoided in 2020; uncertainty intervals range within 20-70 percent of the mean benefit.

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## Community Level Analysis

- Wilmington community (12x12 Km area)
- Located in the South Coast Air Basin
- Close proximity to ports, rail, and other sources

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## Community Level Sources

### Stationary Sources

- Electrical utilities
- Oil and gas production
- Oil refining
- Industrial boilers and internal combustion engines

### Mobile Sources

- Cars and trucks
- Trains
- Ships
- Off-road equipment

### Other

- Residential & commercial fuel combustion

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## Analysis at the Local Level

- Gridded modeling inventory used to reflect local sources and vehicle emissions
- Percent statewide emission reductions applied to local source emissions or throughput by source category

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## Community Level Impacts

- Scoping Plan reduces 2020 emissions
- Scoping Plan reductions  $\approx$  11 avoided premature deaths
- Most health benefits will occur outside of the study area

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## Conclusions

- Draft Scoping Plan will provide new air pollution benefits
- In addition to significant improvements in air quality from existing control program
- Additional analyses will be conducted in measure development

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