

# **Innovative Transport Solutions.**

## **Real-World Experience with Electric Driving.**



**BMW EfficientDynamics.**

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**Manager - Electric Vehicle Operations, BMW of North  
America**

**BMW Group**

# EfficientDynamics.

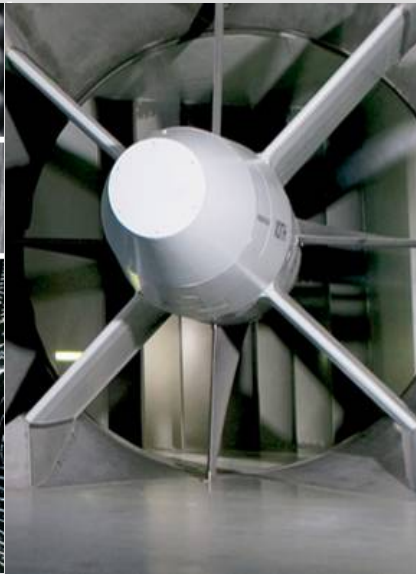
## Short-, Medium- and Long-Term Solutions.



Efficient ICE  
Technology



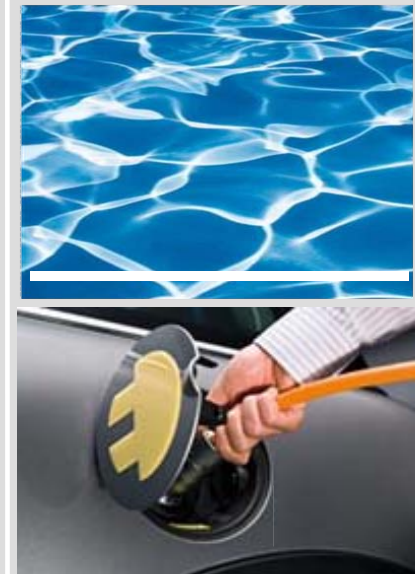
Intelligent Use of  
Light Weight  
Material



Aerodynamics



Intelligent  
Energy  
Management/  
Active Hybrid



Alternative Fuels:  
Hydrogen,  
Battery Electrics

Short-Term

Mid-Term

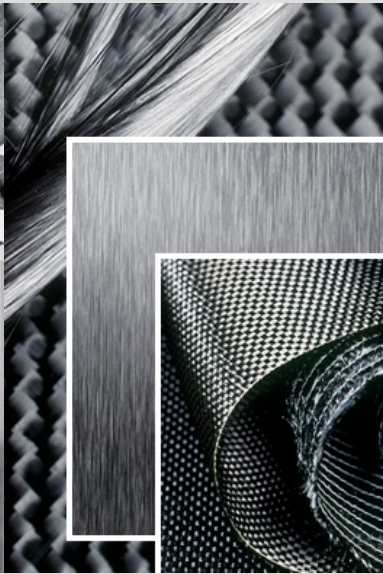
Long-Term

# EfficientDynamics.

## Short-, Medium- and Long-Term Solutions.



Efficient ICE  
Technology



Intelligent Use of  
Light Weight  
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Intelligent  
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Alternative Fuels:  
Hydrogen,

Short-Term

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# Challenges.

## Megacities with different needs.



# Project i.

## Three stage development plan.



### MINI E

- Field trial
- 600 cars (450 in US)
- Powertrain developed with external partner
- Findings utilized in ongoing development

### BMW ActiveE

- Second-phase field trial
- Numbers to be determined
- Powertrain developed in-house
- Many innovations the direct result of findings from MINI E Field Trial



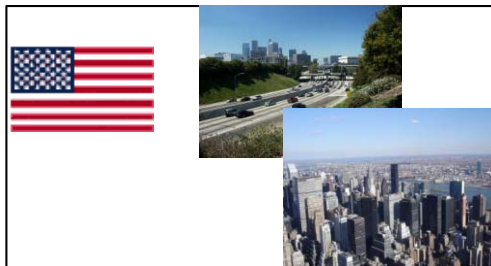
### BMW Mega-City Vehicle

- Planned for 1<sup>st</sup> half of this decade
- Powertrain based on BMW ActiveE

# MINI E Projects.

## Working with many agencies and partners

### Government



### Scientific research



### Fleet



500 Cars in total  
50 Cars in project

### Infrastructure Utilities

Various utilities



Bundesministerium  
für Umwelt, Naturschutz  
und Reaktorsicherheit



CHEMNITZ UNIVERSITY  
OF TECHNOLOGY



Öko-Institut e.V.  
Institut für angewandte Ökologie  
Institute for Applied Ecology



Technische Universität Berlin



50 Cars



SOUTH EAST  
ENGLAND  
DEVELOPMENT  
AGENCY



40 Cars



# MINI E Field Trial.

## Conclusions

- Range of MINI E sufficient for most trips.
- Charging not a big issue even without extensive network of public charging stations.
- Electric mobility does not mean an end to driving fun.
- The key issues remaining with the MINI E are limited space for passengers and luggage.



# MINI E Project.

## Enthusiastic response to join field trial.



# MINI E FIELD TRIAL

[ALL ABOUT THE MINI E ►](#)

[APPLY FOR BETA PROGRAM](#)

[FAQS ►](#)

[JOIN EMAIL LIST](#)

## APPLICATION: MANDATORIES

To apply for participation in the MINI E Field Trial, you'll need to agree that if chosen, you can meet these requirements:

- 1** You have access to a garage. If you are selected for the Field Trial program, an electrician will visit your home to determine if any upgrades to the wiring system of your house are needed. MINI will cover the costs for the basic installation of the wallbox (charging station), however, while most homes built after 1990 will probably be OK, if any electrical work is necessary, you will need to pay for it. The cost of upgrades may exceed \$1,000.
- 2** You live near one of the participating dealers located in NJ, NY Metro & LA Metro.
- 3** You must register the MINI E in NJ, NY or CA.
- 4** You must sign a closed-end 1-year, \$850 per month lease<sup>2</sup> and return the car and the wallbox at the end of the Field Trial program.
- 5** While collision coverage is included in the lease, you will need to obtain automobile liability insurance.<sup>3</sup>
- 6** You must have had your driver's license for more than 5 years and must have a clean driving record.
- 7** You must be willing to bring your MINI E in for a scheduled maintenance appointment at 6-months or 3,000 miles, whichever comes first.



# MINI E Program

## customer feedback

MINI E community extremely active, bordering on evangelical

Multiple feedback channels exist

eLog Book

UC Davis Study

Facebook community

[www.NorthAmericanMotoring.com](http://www.NorthAmericanMotoring.com)

Individual blogs

Shared charging network [www.waterway4.com/mini-e](http://www.waterway4.com/mini-e)

The Facebook logo, consisting of the word "facebook" in white lowercase letters on a blue rectangular background.

# MINI E Program

## UC Davis study

# MINI E

## FIELD TRIAL

**USER INFORMATION**

**CONTACT US**

**LOGOUT**

**MY MINI E JOURNAL**

[> JOURNAL HISTORY \(1\)](#) [> SUBMIT](#)

**01. EXPERIENCE AND FEEDBACK COLLECTION: YOUR MINI E JOURNAL** **COMPLETE**

### Experience and Feedback Collection: Your MINI E Journal

Welcome to the official site for MINI E Field Trial participants.

Collecting direct feedback and documenting the experiences of our select MINI E Pioneers is a vital element of the program, so there are a couple different ways that we'll be collecting your valuable input. First, as you've already discovered, we'll be notifying you by email and asking you to make occasional visits to this site. In addition, a few months from now you should receive a survey in the mail from our friends at the University of California at Davis – a world leader in the field of advanced vehicles.

So, to get things started, we'd love to hear how the first few weeks have gone by introducing you to your online MINI E Journal. How did delivery of the vehicle go? Have people been staring or asking questions? Have you taken your friends for a ride yet? Have you gotten used to the car's quick and quiet feel?

For this first entry, we've suggested a few targeted topics. But moving forward, our hope is that your entries become more freeform and that you'll use the journal to jot down thoughts and noteworthy experiences with your MINI E on a regular basis. Be they lengthy dissertations or simple one-sentence observations about the existential experience of watching a bug hit your windshield or your ruminations on solving the global energy crisis.

**MY MINI E JOURNAL – TASK 01 COMPLETE**

Thanks for completing your first entry!

From now on, you can use the MY MINI E JOURNAL section at the left to make new entries, jot down notes, and view your journal history.

**02. MINI E PIONEER SURVEY** **COMPLETE**

**03. AUDITORY SYSTEMS ANALYSIS** **UPCOMING**

# MINI E User Behavior.

## MINI E use compared to a conventional car



# MINI E User Behavior.

## Actual range in terms of everyday driving

- 45% of households report using MINI E for 90-100% of trips
- Reported range between 70 – 100 miles
- All households report not using other vehicles as much
- Most non-UCD drivers report two –seat configuration and lack of trunk space limiting factor



# **MINI E Brake Energy Regeneration.**

## **Driver perception and acceptance**

- Brake Energy Regeneration seen as something special about the MINI E. Users feel intimately involved in driving the MINI E by using regeneration.
- All drivers like the strong regenerative braking, the single pedal driving and not having to use the brake
- Drivers for the most part reported that they got use to the regenerative braking in a few drives
- 100% agree that they like using one pedal to accelerate and decelerate
- Most of the drivers like the single pedal

# **MINI E User Behavior.**

## **Charging and infrastructure**

- Under normal driving conditions, most found it unnecessary to recharge the car every day.
- Recharging generally took place at night
- Most found a public charging station unnecessary

# BMW ActiveE Field Trial.

## We're listening

- Based on the BMW 1 Series Coupe
  - Room for four passengers and as well as luggage.
- Newly developed battery pack and electric motor
- Liquid heating and cooling of battery cells help ensure more consistent and predictable driving range.
- Advanced smartphone applications enable users to:
  - Remotely check the state of charge
  - Signal car to begin heating or cooling batteries while still connected to the grid

# Thank you for your attention !

